BRITISH MEDICAL JOURNAL

LONDON SATURDAY APRIL 20 1946

IRITIS IN THE RHEUMATIC AFFECTIONS

BY

ARNOLD SORSBY, M.D., F.R.C.S.

Research Professor in Ophthalmology, Royal College of Surgeons and Royal Eye Hospital

AND

A. GORMAZ, M.D.

Assistant, Clinica Oftalmologica, Hospital Salvador, Santiago, Chile

The designation of "rheumatic iritis" has almost followed "scrofulous ophthalmia" into oblivion. In an attempt to assess the frequency of iritis in the rheumatic affections 815 patients suffering from various forms of "rheumatism" were examined for evidence of active or past iritis. As these patients were seen at clinics for the treatment of rheumatic affections or in the wards of general hospitals, slit-lamp examination could not be carried out and only exceptionally was a mydriatic used. The eyes were inspected through a loupe under focal illumination; posterior synechiae or inflammatory pigment deposit were taken as evidence of past iritis. Evidence of iritis was also sought in a control series of in-patients in the general wards. As it is possible that there may be a sex difference in the incidence of iritis—as there undoubtedly is in some of the rheumatic affections—the findings are best considered for the two sexes separately.

Frequency of Iritis in a Series of 815 Cases of Rheumatic Affection

The following summary table based on Tables I and II brings out the salient findings:

Incidence of Iritis in 815 Cases of Different Forms of Rheumatic Affection

	Male		Female		Total	
	No. of Cases	No. Showing Iritis	No. of Cases	No. Showing Iritis	No. of Cases	No. Showing Iritis
Rheumatoid arthritis	68	3	264	12	332	15
Acute and subacute rheumatic fever	57	—	90	—	147	—
Still's disease	3	—	4	—	7	—
Fibrositis	25	—	65	—	90	—
Osteoarthritis	31	—	92	3	123	3
Infective arthritis	4	—	7	—	11	—
Spondylitis ankylopoietica	45	3	8	—	53	3
Gout	5	—	8	—	13	—
Bursitis, capsulitis, and allied conditions	6	—	14	—	20	—
Sciatica	5	—	—	—	5	—
Indefinite conditions	6	—	8	—	14	—
Total	255		560		815	

These findings suggest that the only three conditions that call for consideration are rheumatoid arthritis, spondylitis ankylopoietica, and osteoarthritis.

Rheumatoid Arthritis.—The occurrence of 12 cases of iritis in 264 women with rheumatoid arthritis when compared with the one case in the control series of 316 (Table II) is statistically significant. The chance is somewhat less than 1/1000 that one would draw, from a homogeneous population having the pooled frequency of the two samples, two samples differing by this amount or more. In contrast the occurrence of three cases of iritis in 68 men with rheumatoid arthritis (Table I) is just significant. (Chance 1/21, but if deviation which is in the expected direction is allowed for the chance is 1/42.) In both men and women, age—assuming that with increasing age there is an increase in the tendency towards iritis in the general population—would affect the computations only slightly.

Spondylitis Ankylopoietica.—The 8 cases observed in women showed no instance of iritis, while the 45 men had three with iritis. This incidence in men is significant when compared with the control series. (Chance 1/56, without allowing for direction; the effect of age would increase significance, as the group with ankylosing spondylitis is younger than the control group. Similarly, because of the lower incidence of iritis in the female

TABLE I.—*Incidence of Iritis in Patients Suffering from Various Rheumatic Affections and in a Control Series (Males)*

Age Group (Years)	Control Series	Rheumatic Fever	Still's Disease	Rheumatoid Arthritis	Ankylosing Spondylitis	Osteo-arthritis	Fibrositis	Sciatica	Gout	Infective Arthritis	Bursitis, Capsulitis, etc.	Indefinite Lesions
0–5 ..	—	2	—	—	—	—	—	—	—	—	—	—
6–14 ..	—	55	3	—	—	—	—	—	—	—	—	—
15–20 ..	24	—	—	3	3	—	—	—	—	—	—	—
21–30 ..	27	—	—	3 (1)	10 (1)	1	1	—	—	—	—	1
31–40 ..	55	—	—	13	14 (2)	5	3	1	—	1	2	2
41–50 ..	75 (1)	—	—	18	11	4	9	2	1	2	—	2
51–60 ..	73 (1)	—	—	16	5	12	7	2	1	1	2	1
61–70 ..	75	—	—	14 (1)	2	4	4	—	2	—	2	—
71–80 ..	43 (1)	—	—	1 (1)	—	5	1	—	1	—	—	—
81 and over	7	—	—	—	—	—	—	—	—	—	—	—
	379 (3)	57	3	68 (3)	45 (3)	31	25	5	5	4	6	6

Numbers in the vertical columns = number examined of affection named.
Numbers in parenthesis indicate the number found suffering from iritis.

TABLE II.—*Incidence of Iritis in Patients Suffering from Various Rheumatic Affections and in a Control Series (Females)*

Age Group (Years)	Control Series	Rheumatic Fever	Still's Disease	Rheumatoid Arthritis	Ankylosing Spondylitis	Osteo-arthritis	Fibrositis	Gout	Infective Arthritis	Bursitis, Capsulitis, etc.	Indefinite Lesions
0–5 ..	—	6	—	—	—	—	—	—	—	—	—
6–14 ..	—	82	2	—	—	—	—	—	—	—	—
15–20 ..	19	2	—	1	—	—	—	—	—	—	—
21–30 ..	34	—	1	18	3	1	7	1	2	1	—
31–40 ..	51	—	1	40 (1)	4	4	18	1	1	2	2
41–50 ..	53 (1)	—	—	61 (5)	1	9	14	1	2	6	2
51–60 ..	50	—	—	49 (1)	—	33 (1)	17	3	2	3	2
61–70 ..	52	—	—	49 (2)	—	27	8	2	—	2	1
71–80 ..	45	—	—	30 (2)	—	12 (2)	1	—	—	—	—
81 and over	12	—	—	16 (1)	—	6	—	—	—	—	—
	316 (1)	90	4	264 (12)	8	92 (3)	65	8	7	14	8

control group the significance becomes enhanced when the male and female cases are considered together.)

Osteoarthritis.—Of the total of 123 cases 92 were females and 31 males. The three instances of iritis observed were all in women (of whom one was suffering from long-standing diabetes). Statistically, the incidence of iritis in this group is significant as compared with the control group of women, there being 27 chances to 1 against such an incidence as a chance phenomenon. The odds become reduced to 14 to 1—and therefore non-significant—if the total of 123 cases of osteo-arthritis in the two sexes is regarded as one group showing three cases of iritis.

Type of Iritis Observed

Iritis in the Control Cases (Tables I and II)

The three men (in a series of 379) who showed iritis were 49, 55, and 72 years of age respectively. The first patient was dying from carcinoma of the lung; in the second the Wassermann reaction was positive; both these patients showed iritis in both eyes. In the man aged 72 the iritis was confined to the right eye and the patient was suffering from haematuria. The one woman (in a series of 316 controls) who showed iritis suffered from indefinite symptoms, and the inflammation was confined to the right eye. In none of these patients was the iritis active.

Iritis in the Patients with Rheumatic Affections (Tables I and II)

Rheumatoid Arthritis.—In a total of 332 cases with rheumatoid arthritis (264 women and 68 men) there were 15 patients showing iritis. The ages of these patients ranged between 23 and 82 years. In only one case was the iritis acute (in a woman aged 37), and in only three cases was the condition bilateral (in a woman aged 49, and in two men aged 23 and 65). In three patients there was a possibility of an aetiological factor other than rheumatoid arthritis. One woman aged 43 gave a history of iritis in the left eye at the age of 34 following an attack of mumps. She had been suffering from rheumatoid arthritis since the age of 23, and the attack of mumps precipitated not only the iritis but a considerable flare-up of rheumatoid arthritis. In another woman, aged 41, there had been repeated attacks of iritis in the left eye; she was suffering from rheumatoid arthritis confined to the right hip, and had previously had tuberculosis of that joint. There was nothing in the appearance of the iris reaction to suggest tuberculosis. In a man aged 65 there was a history of bilateral iritis which came on at the age of 38, after he had received an injection of antidysentery serum in the Army in 1918. There was a simultaneous reaction in the joints, and he had been told that he was suffering from serum arthritis and iritis. The second attack of iritis, confined to the left eye, occurred at the age of 40. Some years later—probably as long as ten years after—he showed evidence of rheumatoid arthritis. Now, at the age of 65, he has rheumatoid arthritis confined to the smaller joints.

In only two of the 15 cases was the iritis severe. In the youngest patient, a man aged 23, the rheumatoid arthritis was exceptionally severe. It had begun at the age of 15, and iritis had developed at 19. Now, at the age of 23, he is bedridden and little more than an ossified skeleton, as there is severe involvement of the spine in addition to the other joints. He has no perception of light and the tension is −2 in each eye, the eyes having shrunk through repeated attacks of severe plastic iridocyclitis. In the second patient, a woman aged 49, severe rheumatoid arthritis set in at the age of 20, but the eye trouble appears to have come on before then, and to have relapsed frequently. She is certifiably blind from chronic iridocyclitis. The striking features in the remaining 13 cases are the unilateral distribution of the iritis and its mildness. In five of these 13 cases the patient had experienced more than one attack of iritis, but none of them showed any evidence of cyclitis.

Though it is difficult to be emphatic on this point, because the histories were not always reliable, it appears that with one possible exception the iritis did not precede the development of rheumatoid arthritis, and the impression was gained that iritis is more apt to develop in long-standing cases than in cases of shorter duration. Though the two most severe cases of iritis (or rather iridocyclitis) occurred in patients severely affected, the severity of the condition, as distinct from duration, did not seem to be directly related to the tendency towards iritis.

Ankylosing Spondylarthritis.—The three cases of iritis observed all occurred in men, their ages being 26, 35, and 38 years, respectively. In the youngest of these patients an attack of iritis in the left eye had occurred at the age of 15. The second attack developed three years later, and subsequently, at the age of 20, the first signs of ankylosing spondylitis developed. He has since had one further attack of iritis, also confined to the left eye. In the second patient there was a history of vague polyarthritis at the age of 23. His condition had then been diagnosed as rheumatic fever. His first and only attack of iritis occurred at the age of 28. This was followed by a flare-up in the joint condition, which still presented difficulty in diagnosis. It was not until the age of 34 that a definite diagnosis of ankylosing spondylitis involving hands and feet was made. In the third patient there had been a well-established ankylosing spondylitis for some years when iritis developed in the right eye at the age of 35, and in the left eye two years later. In none of these patients was there any evidence of ciliary involvement.

In these three patients the iritis was therefore a pointing sign in one case. Their spondylitis was of moderate severity, and in none was there any evidence of gonococcal infection. Some of the remaining patients with ankylosing spondylitis who did not show iritis were affected as severely as, or more severely than, these three men.

Osteoarthritis.—Iritis was observed in three of the 92 women with osteoarthritis. Their ages were 52, 73, and 80 years. All the three patients had unilateral iritis, and in one case—the patient aged 73—there was a history of long-standing diabetes. In no case was the iritis severe or associated with a cyclitis.

Incidental Ocular Findings

Among the patients with rheumatoid arthritis the following apparently incidental ocular findings were noted: senile cataract, four times; loss of eye through accident, three times; glaucoma, twice; and one instance each of Argyll Robertson pupil, rosacea keratitis, filamentary keratitis, mustard-gas keratitis, interstitial keratitis, corneal opacity, and vascularized nodule on the cornea. The osteoarthritis group showed three cases of cataract, while one of the patients with Still's disease had a leucoma. Congenital cataract was seen once among children with rheumatic fever and once among the patients suffering from fibrositis.

Review of Literature

Spondylarthritis Ankylopoietica

The monograph literature on spondylarthritis ankylopoietica speaks of the occurrence of iritis in the course of the affection as an established fact. Thus Ehrlich (1930) mentions that 65 instances of iritis occurred in a series of 753 patients with spinal-column affections (of which 493 were cases of spondylosis deformans and 260 [and possibly only 152] of spondylitis ankylopoietica). Krebs (1938) likewise implies that iritis is a not uncommon association of spondylarthritis ankylopoietica, and instances the case of a young ophthalmologist who developed iritis and choroiditis some few years before showing the signs of spondylarthritis. Gilbert Scott (1942) notes that there were 20 cases of iritis in "some 300" patients with ankylosing spondylitis. References in the same strain abound in the earlier literature. Thus Wehrsig in 1910 stressed the "surprising frequency" of iritis in "Wirbelsaeulungsteifung," whilst isolated instances are noted in a number of case reports (Leri; Fraenkel; Sivén; Anschütz). More recently Fischer and Vontz (1932) noted the occurrence of iritis in three of their 100 patients, while Wolff (1935) observed it six times in 15 cases.

These general observations were considerably clarified in 1933 by the simultaneous publications of Heuser, Marbaix, Kunz, and Teschendorf.

1. Heuser.—In recording a case of bilateral severe iridocyclitis with secondary glaucoma Heuser drew attention to the associated spondylarthritis ankylopoietica (which he regarded as gonococcal in origin) and also to the incidental observations of orthopaedic surgeons as to the association of the two affections.

2. Marbaix.—This observer likewise stressed the association of the two affections in a patient under his care. Marbaix's patient, in contrast to Heuser's, became blind, as did the patients of Van Lint (1933) and of L. Coppez (1933), who added their case reports to those of Marbaix.

3. Kunz.—A more detailed study came from Kunz. On routine examination two patients with "rheumatic iritis" were found to suffer from ankylosing spondylitis. Other cases of possible "rheumatic iritis" were then systematically *x*-rayed for evidence of the vertebral lesion and five more were discovered. Of these seven cases, five showed active iritis and two evidence of old iritis, and they constituted "about half the number of 'rheumatic iritis'" cases seen during the few months in which they were collected. There was only one woman in this group of seven. The iritis itself was either mild (in one case) or led to seclusion of the pupil (in three cases). In no instance was there any cyclitis. As for the spondylitis, in two cases it was obvious clinically, while in two more there was only *x*-ray evidence of the affection. The iritis seemed to coincide with the onset of the spondylitis in "some cases," but mostly came on later—sometimes after many years. Many long-standing cases of ankylosing spondylitis showed no evidence of iritis. Kunz added another case to his series in 1935.

4. Teschendorf.—This observer, a radiologist, collaborated with Kunz, and his account includes two additional cases. He stresses that in six of the nine cases the *x*-ray picture showed the typical bamboo spine, though three of these patients were not conscious of the spinal-column lesion.

The ophthalmological literature of the subsequent years contains a number of case reports.

(*a*) Kraupa (1933), in recording four cases, holds that the iris reaction—which did not tend to lead to synechiae—suggests a gonococcal origin of both the affections.

(*b*) Smaltino (1934) added two cases—one showing acute iritis with hypopyon and the other recurrent iritis. He stressed the tendency to recurrences, and believed these to be part of the clinical picture of ankylosing spondylitis, as they came during exacerbations of the spinal-column affection.

(*c*) Strebel (1935) reported a case in which both the iritis and the ankylosing spondylitis responded well to operation on the parathyroids—a therapeutic procedure advocated some years ago by Opin.

(*d*) Schley (1935, 1937).—Of 105 patients with iritis 32 showed a localized reaction ("tuberculous or syphilitic") and 73 a diffuse superficial reaction ("rheumatic iritis"). There were no spinal-column lesions in the first group, but only 23 of the 73 in the second group showed normal *x*-ray pictures of the vertebral column; in 10 ankylosing spondylitis was seen, and in the remaining 40 spondylosis deformans—and in none of these 40 cases was the blood sedimentation rate raised or was there other evidence of an inflammatory origin of the spinal-column lesion.

(*e*) Ascher (1936), in reporting four cases and noting a fifth under the care of a colleague (Ludwig), gives a survey of the 27 cases reported up to then by oculists. All but one were men. Of 11 patients whose occupation was known, only two were manual labourers. Of 24 whose ages were known, the spondylitis set in early in four instances (one instance at each of the ages of 7, 11, 19, and 20 years). The iritis was noted as mild in five instances, but there were also three bilateral and two unilateral cases of secondary glaucoma; four patients lost the sight of both eyes and one patient of one eye.

(*f*) Babel (1940) notes iritis running a mild course in a case of ankylosing spondylitis.

(*g*) Novoa-Recio (1941) stresses the value of gold therapy for the iritis no less than for the ankylosing spondylitis.

(*h*) Franceschetti and Brocher (1944) note two illustrative cases—one of acute iritis in ankylosing spondylitis of gonococcal origin and the other of recurrent unilateral iridocyclitis with hypopyon in a patient with a non-specific ankylosing spondylarthritis. They also quote Mylius (1942) as observing a severe course of iridocyclitis as well as mild cases and as claiming as high an incidence of iritis as 50%.

Rheumatoid Arthritis

There is little concrete evidence as to the occurrence or frequency of iritis in rheumatoid arthritis. An early observation by Burt (1908) drawing attention to recurrent acute iritis in a case of rheumatoid arthritis does not seem to have been followed by other reports. Berens, Rothbard, and Angevine (1942) found uveitis in two out of 83 patients with rheumatoid arthritis. They do not speak of iritis exclusively: "To make certain that only true cases of uveitis were reported, it was necessary that keratitic precipitates, cells in the anterior chamber, and other clinical signs be present." Bauer, as quoted by these observers, found uveitis in seven out of 150 patients with rheumatoid arthritis. Cecil and Angevine are also quoted as observing three instances of uveitis in 200 cases. Dawson (1935) speaks of having seen a number of cases of iritis in rheumatoid arthritis, four of which were particularly intractable, and two of them ended in blindness. The occurrence of iritis in rheumatoid arthritis is also indicated by Novoa-Recio (1941) and by Franceschetti and Brocher (1944).

Rheumatic Fever

The monograph literature gives iritis as an occasional occurrence in rheumatic fever (Coburn, 1931; Wilson, 1940). Coburn reports it as having occurred once in a series of 162 cases in which "frequent return of iritis was observed with rheumatic recrudescences." In contrast Berens and his associates (1942) did not observe iritis in their series of cases [? number], nor did Rudolph (1945) see it in 150 (presumably adult) men in a military hospital. In 17 out of 28 cases of rheumatic fever Pillat (1935) found small fresh or old choroidal lesions; they were mainly peripheral in position, but in two cases looked like miliary tubercles. Pillat's findings remain a unique observation. (In 11 of Pillat's 17 cases with positive findings Loewinstein found tubercle bacilli in the blood stream.)

Gout

Whether gout is an affection that has disappeared or one that has been forgotten is a matter of opinion. It is, however, clear that Sydenham's "totum corpus est podagra" is hardly applicable to-day, and much that went in the older literature as gouty iritis had as little validity as had the designation of rheumatic iritis. The frequency of iritis in patients known to be suffering from gout does not appear to have been determined. It is of some interest that large series of gout reported in the recent literature make no mention of iritis as one of the complications observed, though others are noted. These reports (by general physicians) cover 116 cases studied by Williamson (1920), 37 cases by Cohen (1936), 93 cases by Hill (1938), 62 by Kinel and Haden (1940), and 100 by Bröchner-Mortensen (1941). Case reports on the occurrence of iritis in gouty subjects still leave open to question whether there is such a thing as gouty iritis or merely iritis in the gouty. Some hold that gouty iritis is a clear-cut entity characterized by sudden onset, intense conjunctival and episcleral hyperaemia, and but few changes in the iris and little tendency to synechia (Krückmann, 1907, 1910; Wood, 1936). A more convincing feature is the fact that it occurs during an acute attack of gout, and the iritis responds to general treatment such as dietetic balance and colchicum in a parallel manner to the gout (Savin, 1938). The fact that uric acid crystals have been found in the eye in gouty scleritis (Garrod, 1866), gouty acute glaucoma (Niyazi and Vefik, 1929), and gouty iritis (Wood, 1936) is not, as Graham (quoted by Savin, 1938) points out, conclusive evidence of the gouty nature of these particular cases, for an inflammation due to any cause would tend to precipitate into the affected tissue the excess of uric acid present in the blood stream. Though final proof is lacking, it would seem that gouty iritis is a clinical entity (Savin).

Discussion

On the basis of the present study and the findings in the literature it may be accepted that iritis is a concomitant lesion in ankylopoietic spondylitis and in rheumatoid arthritis. In osteoarthritis, gout, and rheumatic fever the position is not clear. That it may be a pointing sign in ankylosing spondylitis is suggested by cases recorded by Wolff (1935), by Krebs (1938), and in the present study.

Ankylosing spondylitis and rheumatoid arthritis are not the only forms of rheumatic disease that have ocular complications, nor is iritis the only ocular manifestation of the rheumatic affections. There is a growing and substantial literature on the occurrence of iridocyclitis with a peculiar band-shaped opacity of the cornea in Still's disease (e.g., Holm, 1935; Zeeman, 1940; Blegvad, 1941; Wong, 1941; Kurnick, 1942), while scleromalacia perforans (Van der Hoeve, 1934; Verhoeff and King, 1938; Smoleroff, 1943; Tyrrell, 1945) appears to be associated with rheumatoid arthritis. Moreover, rheumatoid arthritis seems to be part of the Sjögren (1940) syndrome. To stress these clear-cut associations is not equivalent to reviving the old conception of "rheumatic eye disease." Such emphasis serves two useful purposes.

In the first place, it has a clinical significance in the always difficult task of assessing the causal factor in any particular

case of iritis and iridocyclitis, though obviously the significance of the "rheumatic" factor needs further clarification. Secondly, it has some theoretical value, which extends beyond the question of the rheumatic affections in the narrower sense, for it raises the issue of the association of ocular inflammation with joint inflammation generally. It is recognized that iritis may occur in a whole series of acute infectious diseases with joint manifestations. Apart from gonorrhoeal iritis there are the lesions seen in typhoid, dysentery, "influenza," tuberculosis, and, judging by a recent report (Reed and Goldfain, 1938), also in brucellosis. These lesions, though they may be pyogenic, are not usually so, and their nature is not too clear. Nor is the nature of rheumatoid arthritis and ankylosing spondylitis elucidated, though they are generally regarded as infectious in origin. More consistently than the other arthritides they show no organisms or purulent reactions, and in this they resemble the intraocular inflammations; for iritis, cyclitis, choroiditis, and optic neuritis are not the reactions to organisms in the tissue. The association of iritis with joint affections in general and the rheumatic arthritides in particular raises two issues: (1) Is there a physiological parallelism between the eye and the joint in the reaction to exciting agents? ; and (2) What is the nature of the inflammation which produces the non-pyogenic joint reaction and the non-pyogenic intraocular inflammation?

The rheumatologist is perhaps better versed in the problem of the non-pyogenic inflammatory reaction than is the ophthalmologist, but the problem covers common ground for both. Like the oculist, the rheumatologist recognizes inflammation due to the gonococcus, and to a lesser extent the spirochaete; and parallel to the rheumatologist's quest for non-bacterial exciting causes of inflammation is the oculist's recognition of iritis in metabolic disorders (diabetes, and possibly gout), endocrine disturbances (the iridocyclitis of the menopause), neurotrophic disorders (the heterochromia and atrophy of the iris in sympathetic-cord lesions), and chemical factors (the iritis of an ammonia burn of the conjunctiva). It may also be that both the rheumatologist and the oculist deal with fundamentally similar problems because their interest centres in what is possibly a physiologically similar mechanism. The interior of the eye is highly, but not absolutely, protected from abnormalities in the blood stream and from pyogenic invaders by the barrier mechanism in the ciliary body, and it is possible that the blood–aqueous barrier is paralleled by the blood–synovial-fluid barrier located in the synovial membrane. That this is not altogether an idle speculation is suggested by the experimental findings of Angevine and Rothbard (1940). These observers found that, out of 40 rabbits which had received an intravenous injection of relatively avirulent Group A haemolytic streptococci, joint lesions developed in 26 and intraocular lesions in 17 animals. The primary sites of damage were the synovial villi and the ciliary processes respectively.

Summary

Iritis was observed three times in a series of 123 patients with osteoarthritis, three times in 53 patients with ankylosing spondylitis, and 15 times in 332 patients with rheumatoid arthritis. No cases of iritis were seen in 313 patients suffering from various other forms of rheumatic disease. Assessed against a control series the finding as regards osteoarthritis is not significant, while that relating to rheumatoid arthritis is highly significant.

The iritis observed in the patients suffering from rheumatoid arthritis was mild and unilateral in all but two cases. There was a history of recurrent attacks, always confined to the same eye, in over one-third of these patients. The two patients who suffered from bilateral iridocyclitis were both certifiably blind, one (the youngest patient in the whole series) having no perception of light in either eye.

A review of the literature shows little appreciation of the frequency of iritis in rheumatoid arthritis. In contrast the occurrence of iritis in ankylosing spondylitis is well established. That iritis may be a pointing sign in ankylosing spondylitis is suggested by one case in the present series and two similar observations noted in the literature. Iritis in rheumatic fever appears to be rare; in gout no cases of iritis were observed in the present series, and none were noted in several recent surveys of large numbers of gouty patients, but there seems to be no reason to doubt the validity of gouty iritis as a clinical entity.

Iritis, like rheumatoid arthritis and ankylosing spondylitis, is regarded as an inflammatory reaction. Since neither organisms nor pus are normally recovered from both the inflamed eye and the rheumatic joint, both these inflammatory reactions have been ascribed to indirect bacterial activity as well as to a whole series of non-bacterial exciting factors. There is undoubtedly some parallelism in the reaction of the eye and the joint to a noxious agent. The problem of intraocular inflammation is similar to that of inflammation of the joint.

We are indebted to Lord Horder and Sir Frank Fox, of the Empire Rheumatism Campaign, for the readiness with which they placed the facilities of their organization at our disposal. Dr. A. C. Elkin, of the West London Hospital; the Physicians to the Red Cross Clinic, Peto Place; Dr. J. Barnes Burt, of the Royal Mineral Water Hospital, Bath; Prof. B. W. Windeyer, of Middlesex Hospital; and the Physicians to the Rheumatic Unit at St. Stephen's Hospital, have all greatly helped by facilities to examine their patients, as have the medical superintendents of the following London County Council hospitals: Hackney; Queen Mary's, Carshalton; Lambeth; South-Western; St. Alfege's; St. Benedict's; St. Luke's; St. Pancras; St. Francis; and St. John's; as also Dr. J. N. Deacon, of Redhill Hospital, Edgware. We are particularly obliged to Dr. Francis Bach, Dr. J. L. Hamilton-Paterson, and Dr. Kenneth Stone for the trouble they have taken and for much helpful advice. We are also indebted to Dr. J. A. Fraser Roberts for assessing our findings statistically.

REFERENCES

Angevine, D. M., and Rothbard, S. (1940). *J. exp. Med.*, **71**, 129.
Anschütz. Quoted by Teschendorf (1933).
Ascher, K. (1936). *Med. Klinik*, **32**, 666.
Babel, J. (1940). *Schweiz. med. Wschr.*, **70**, 1066.
Bauer. Quoted by Berens *et al.* (1942).
Berens, C., Rothbard, S., and Angevine, D. M. (1942). *Amer. J. Ophthal.*, **25**, 295.
Blegvad, O. (1941). *Acta ophthal.*, **19**, 219.
Bröchner-Mortensen, K. (1941). *Acta med. scand.*, **106**, 81.
Burt, J. B. (1908). *Ophthalmoscope*, **6**, 11.
Cecil and Angevine. Quoted by Berens *et al.* (1942).
Coburn, A. F. (1931). *The Factor of Infection in the Rheumatic State*, p. 27, Baltimore.
Cohen, A. (1936). *Amer. J. med. Sci.*, **192**, 488.
Coppez, L. (1933). *Bull. Soc. belge Ophtal.*, No. 66, p. 45.
Dawson, M. H. (1935). In *Nelson's New Loose-leaf Medicine*, **5**, 626.
Ehrlich, C. (1930). *Die sogenante Bechterewsche Krankheit*, p. 31, Reimar Hobbing, Berlin. (*Arbeit und Gesundheit*, ed. Martineck, Heft 15.)
Fischer, A., and Vontz, O. (1932). *Mitt. Grenzgeb. Med. Chir.*, **42**, 590.
Fraenkel, E. Quoted by Teschendorf (1933).
Franceschetti, A., and Brocher, J. E. W. (1944). *Schweiz. med. Wschr.*, **74**, 299.
Garrod, A. B. (1866). Quoted by Savin (1938).
Graham, G. Quoted by Savin (1938).
Heuser (1933). *Klin. Mbl. Augenheilk.*, **90**, 720.
Hill, L. C. (1938). *Lancet*, **1**, 826.
Holm, E. (1935). *Trans. ophthal. Soc. U.K.*, **55**, 478.
Kinel, J., and Haden, R. L. (1940). *Med. Clin. N. Amer.*, **24**, 429.
Kraupa, E. (1933). *Klin. Mbl. Augenheilk.*, **91**, 493.
Krebs, W. (1938). *Die Bechterewsche Krankheit*, p. 25, Theodor Steinkopff, Dresden and Leipzig. (*Der Rheumatismus*, ed. R. Jurgens, Bd. 3.)
Krückmann, E. (1907). *Graefe-Saemisch Handbuch d. Augenheilk.*, Bd. V, Kap. VI, p. 35, Julius Springer, Berlin.
—— (1910). *Med. Klinik*, **6**, 1471.
Kunz, E. (1933). *Klin. Mbl. Augenheilk.*, **91**, 153.
—— (1935). Ibid., **95**, 486.
Kurnick, N. B. (1942). *Amer. J. Dis. Child.*, **63**, 742.
Leri. Quoted by Marbaix (1933).
Ludwig. Quoted by Ascher (1936).
Marbaix, M. (1933). *Bull. Soc. belge Ophtal.*, No. 66, p. 41.
Mylius, K. (1942). *Rheumatismus und Auge*, Steinkopf, Dresden. (Quoted by Franceschetti and Brocher, 1944.)
Niyazi, I., and Vefik, H. (1929). Quoted by Savin (1938).
Novoa-Recio, F. E. (1941). *Arch. Oftal. Buenos Aires*, **16**, 36. (Seen in abstract in *Amer. J. Ophthal.*, 1942, **25**, 761.)
Pillat, A. (1935). *Wien. klin. Wschr.*, **48**, 302.
Reed, J. R., and Goldfain, E. (1938). *J. Oklahoma St. med. Ass.*, **31**, 302.
Rudolph, C. J. (1945). *Amer. J. Ophthal.*, **28**, 319.
Savin, L. H. (1938). *Trans. ophthal. Soc. U.K.*, **58**, 149.
Schley, H. (1935). *Klin. Mbl. Augenheilk.*, **95**, 807.
—— (1937). Ibid., **98**, 780.
Scott, S. G. (1942). *Adolescent Spondylitis*, Oxford Univ. Press, London.
Sivén. Quoted by Teschendorf (1933).
Sjögren, H. (1940). In *Modern Trends in Ophthalmology*, p. 403, ed. Ridley and Sorsby, Butterworth and Co., London.
Smaltino, M. (1934). *Boll. Ocul.*, **13**, 1619.
Smoleroff, J. W. (1943). *Arch. Ophthal.*, **29**, 98.
Strebel, J. (1935). *Klin. Mbl. Augenheilk.*, **95**, 786.
Teschendorf, H. J. (1933). *Dtsch. med. Wschr.*, **59**, 1576.
Tyrrell, T. M. (1945). *Trans. ophthal. Soc. U.K.* (in the press).
Van der Hoeve, J. (1934). *Arch. Ophthal.*, **11**, 111.
Van Lint (1933). *Bull. Soc. belge Ophtal.*, No. 66, p. 45.
Verhoeff, F. H., and King, M. J. (1938). *Arch. Ophthal.*, **20**, 1013.
Wehrsig (1910). *Virchows Arch.*, **202**, 305.
Williamson, C. S. (1920). *J. Amer. med. Ass.*, **74**, 1625.
Wilson, M. G. (1940). *Rheumatic Fever*, p. 188, Commonwealth Fund, New York.
Wolff, G. (1935). *Z. orthop. Chir.*, **63**, 152.
Wong, R. T. (1941). *Arch. Ophthal.*, **26**, 21.
Wood, D. J. (1936). *Brit. J. Ophthal.*, **20**, 510.
Zeeman, W. P. C. (1940). *Nederl. Tidschr. Geneesk.*, **84**, 134.

The Medical Research Council has issued as No. 253 of its Special Report Series a survey by Dr. B. S. Platt entitled *Tables of Representative Values of Foods Commonly Used in Tropical Countries* (H.M. Stationery Office; 9d.). The compilation of a table of food values for use in Nyasaland and areas consuming similar foods was the foundation from which the present tables have been built up. They are the first published results of the Nyasaland survey undertaken to determine the relation of economic, sociological, and agricultural matters to nutrition, as well as the correlation of health with the nutritive value of the diet.

PREVENTION OF TRANSFUSION REACTIONS DUE TO Rh FACTORS

BY

F. W. GUNZ, M.D., M.R.C.P.

Assistant Clinical Pathologist, Addenbrooke's Hospital, Cambridge

During the past few years there have been many reports of intra-group haemolytic blood transfusion reactions caused by Rh antibodies (Levine and Stetson, 1939; Wiener and Peters, 1940; Boorman *et al.*, 1942; Diamond, 1942; Wiener *et al.*, 1942; Dameshek and Levine, 1943; Mollison, 1943; Beck *et al.*, 1944; Callender and Paykoç, 1946; Callender *et al.*, 1945; Diamond, 1945; Drummond *et al.*, 1945; Plaut *et al.*, 1945). The importance of routine determination of the Rh type of patients requiring transfusion has been widely stressed. The Rh antibodies differ from the inter-group agglutinins of the ABO system in that, with very rare exceptions (Diamond, 1942), they do not occur naturally, but are formed by the Rh-negative subject in response to sensitization, either from an Rh-positive foetus *in utero* or from a transfusion of Rh-positive blood. Hence it is most unusual for first children to show signs of haemolytic disease or for Rh-negative patients to suffer haemolytic reactions during a first blood transfusion, although antibodies may be formed rapidly enough to curtail the useful life of Rh-positive cells given in a first transfusion.

It is fortunate that sensitization to the Rh factors occurs only in a minority of subjects at risk. The chance of an Rh-negative woman forming antibodies against the blood of her Rh-positive foetus has been variously estimated as between 1:20 and 1:40 (Haldane, 1942), but these figures are based on data for the incidence of neonatal haemolytic disease obtained before the discovery of the Rh factors (Darrow, 1938). In the case of Rh-negative recipients of Rh-positive blood transfusions, little is known beyond the fact that sensitization is by no means invariable. Callender and Paykoç (1946) found anti-Rh agglutinins in 1 of 17, and Moloney (1945) in 1 of 18 Rh-negative patients who had received multiple blood transfusions. Callender and Paykoç's patient was a woman, but as she had not been pregnant the antibody must presumably have been formed in response to transfusions of Rh-positive blood.

No doubt can exist that in an ideal transfusion service the Rh type of every recipient should be determined before transfusion, and that only blood of the appropriate type should be given. The difficulties in establishing such a service are, however, formidable. Special grouping laboratories have been set up for this purpose in several American cities (Barton, 1944; Butler *et al.*, 1944; Diamond, 1945; Young and Kariher, 1945); but the procedure is so cumbersome and expensive that it has so far been found necessary to restrict Rh typing to special groups of recipients. Diamond's laboratory performs 500 Rh tests and 50 anti-Rh determinations each week; it is obvious that special laboratories of this kind are warranted only in large centres where they can serve a whole group of hospitals. Furthermore, so long as the approximate percentage of patients susceptible to sensitization remains unknown the justification for such an elaborate system is doubtful.

Aim and Method of Present Investigation

The present investigation was undertaken with the following aims: (1) to discover if a blood transfusion service could be run in a medium-sized hospital, with an average clinical laboratory, so as to eliminate the likelihood of haemolytic transfusion reactions due to Rh antibodies; (2) to determine the rate of formation of Rh antibodies in an unselected series of patients receiving multiple blood transfusions. For this purpose it was decided to confine Rh typing to two categories of patients: (*a*) those who had received a previous transfusion of Rh-positive or unknown blood; (*b*) those with an obstetric history suggestive of a possible sensitization to the Rh factors.

The accompanying special application form (see Fig.) was distributed to all wards and departments, and blood was issued only after receipt of the completed form, accompanied by citrated and clotted samples of the patient's capillary blood. The ABO group was determined in all patients. In the case of patients falling into Category *a* or *b* the Rh type was determined by means of an anti-Rh$_0$ (anti-D) serum, and blood of the appropriate type was issued. In all other instances Rh-positive blood was issued, except in a small number at times when Rh-negative blood happened to be in greater supply than Rh-positive. The homologous group was given to Group A and Group O recipients, and Group O blood to Group B and Group AB recipients. Rh-negative blood was usually available at the local blood-bank, and a special effort was made always to have in the hospital store at least one bottle of Rh-negative blood of Groups A and O. In only one or two cases were Rh-negative donors specially bled.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE

APPLICATION FOR BLOOD FOR TRANSFUSION

This form, completed by the Sister or the Nurse-in-Charge, and accompanied by samples of the patient's blood taken from the ear-lobe or finger into the two tubes provided, *must* be sent to the Clinical Laboratory *before any blood transfusion is given.*

Patient's Name.....

Age..... *Sex*..... *Ward*.....

Name of H.P. or H.S......

Disease .....

(1) Has patient ever had a previous blood transfusion? If so, give date(s).....

.....

(2) Has patient had a baby (or babies) suffering from oedema (hydrops foetalis), severe jaundice, or profound anaemia?.....

.....

(3) Has patient had repeated miscarriages or stillbirths?.....

If the answer to any of the three questions is "Yes" only Rh-negative blood should be given unless the clinical pathologist has been personally consulted.

After every blood transfusion, the bottle(s) should be returned *unwashed* to the Clinical Laboratory.

Signature.....

Date.....

NOTES FOR LABORATORY USE

.....

.....

When a patient in Category *a* or *b* was found to be Rh-negative a sample of venous blood was obtained and the serum examined for evidence of anti-Rh agglutinins. The incomplete antibody (Race, 1944; Wiener, 1944) was not sought for. It must be stressed that antibodies were looked for *before* a *repeat* transfusion, and *not after* a potentially *sensitizing* transfusion. It was thought that this would give a more useful answer to an inquiry concerned with conditions obtaining in routine transfusion practice.

After each transfusion a careful inquiry was made into the possible occurrence of reactions. When any reaction was reported, such as rise of temperature, rigor, discomfort, or jaundice, another specimen of venous blood was obtained, and the cause of the reaction investigated with the help of the pre- and post-transfusion samples of the recipient's blood, and the blood remaining in the transfusion bottles.

Every care was taken to make the series representative of the entire transfusion work of the hospital. The only patients excluded were infants suffering from definite haemolytic disease.

Results

This report covers a period of 17 months in a hospital of 800 beds. During this time 232 patients (110 male, 122 female) were given a total of 292 transfusions, for which 620 standard bottles of blood were used. The total number of transfusions given in the hospital was somewhat larger, the probable difference amounting to about +10%. Multiple transfusions given to any individual patient within a period of seven days are classified as a single continuous transfusion, as it is unlikely that antibodies developed immediately after the first transfusion.

During the 17 months 58 patients (34 male, 24 female) received either more than one transfusion, or second transfusions after a potentially sensitizing transfusion given before the start of this inquiry. Of these, 48 (83%) patients (27 male, 21 female) were Rh-positive and 10 (17%) patients (7 male, 3 female) were Rh-negative. The figures closely approximate those found in the general population, and tend to show that the sample was a representative one. Among the Rh-negative

patients, two (1 man, 1 woman) developed antibodies; six did not develop antibodies; and two were not tested.

Case 1.—Mrs. A., aged 33. Tuberculous peritonitis. Two normal pregnancies four and eight years previously. No stillbirths or miscarriages. May 15, 1944: Given a transfusion of unknown blood. No reaction. Sept. 7: Application for blood for further transfusion. Found to be Group A Rh-negative. Anti-Rh agglutinin present at titre 1: 4. Given two bottles of Rh-negative blood. Further transfusions of Rh-negative blood on Oct. 4 and Dec. 12. No reactions to any of these.

Case 2.—Mr. B., aged 23. Infected compound fracture of femur. Jan. 4, 1944: Given two bottles of unknown blood. No reaction. Jan. 13: Given two bottles of unknown blood. No reaction. June 21: Application for blood for further transfusion. Found to be Group O Rh-negative. Anti-Rh agglutinins present. Given one bottle of Rh-negative blood without reaction.

The Rh type was also determined in three women in Category *b* (obstetric cases) who were about to have first blood transfusions. One was Rh-positive and two were Rh-negative. No antibodies were present in any of their sera, and no reactions followed the giving of appropriate blood.

Reactions

A total of 17 (5.8%) reactions occurred among the 292 transfusions. These are classified in the following table. It was

The Reactions Classified

Slight or moderate rise of temperature (1–3° F.: 0·5–1·6° C.) ..	6
Mild or moderate rigor	7
Jaundice	2
Urticarial rash	2
Total	17

noticeable that, although special inquiry was made in each case, no reaction was said to be accompanied by backache. No patient was upset by the reaction for more than an hour at most; and several reactions produced no subjective symptoms. In no case was incompatibility of the blood or the presence of irregular antibodies found on subsequent investigation. The reactions were ascribed to various causes such as pyrogens, a too rapid rate of transfusion, or allergy.

Discussion

No claim can be made that sensitization of two Rh-negative patients among 10 who had received Rh-positive or unknown blood represents the true rate which might be found in the general population; for this was only a small sample, although it was unselected. Furthermore, the incomplete antibody, now known to occur fairly frequently, was not tested for; had this been done the percentage of sensitized patients might have been higher. It is of interest that strong antibodies were circulating in the blood of the patients as long as four and five months respectively after their sensitizing transfusions. The inference may be drawn that both patients would have suffered haemolytic reactions had they been given Rh-positive blood for their subsequent transfusions.

Although it is true that the sensitization rate of 2 in 10 Rh-negative patients is probably not an accurate guide, it might serve as a rough indication of the actual problem facing an average hospital transfusion service. On the basis of a 15% incidence of Rh-negative subjects in the general population, it can be assumed that there were 35 Rh-negative patients among the total of 232 transfused. Of these, 7 would have been sensitized if the rate of 2 in 10 observed in this inquiry were generally applicable.

In an ideal transfusion service it is clearly desirable to prevent the occurrence of any sensitization. In particular, women in the child-bearing period may be sensitized, and so produce in subsequent pregnancies children suffering from haemolytic disease. This is certainly a grave risk, although it can affect only a small number of women, and several undoubted instances have been recorded. There is, however, only one possible way of attaining complete prevention—namely, to determine the Rh type of every recipient before transfusion and to administer blood of the correct type. At present, in the great majority of hospitals, sufficient laboratory facilities do not exist to allow universal Rh typing at a moment's notice; nor is there an unlimited supply of Rh-negative blood.

If, therefore, it be admitted that transfusion sensitization cannot at present be avoided in all cases, it is essential at least to attempt to prevent reactions due to sensitization. This inquiry has shown that the rate of occurrence of haemolytic reactions can be decreased by adopting the procedure outlined. In a total of 292 transfusions no reaction was attributable to sensitization by Rh antibodies; although there were at least two patients who had in fact been sensitized and would probably have suffered haemolytic reactions in the absence of precautions.

If all Rh-negative patients in this series had received the correct type of blood for each transfusion, it is estimated that 92 standard bottles of Rh-negative blood would have been needed. By following the procedure described above, however, only 30 bottles were actually used, which shows that tenuous stocks of Rh-negative blood can be employed economically, and that a comparatively small panel of known Rh-negative donors can supply the needs of a moderately large hospital.

Summary

During a period of 17 months, in a hospital of 800 beds, a scheme has been operating designed to prevent haemolytic transfusion reactions due to Rh antibodies.

232 patients received 292 transfusions; of these, 58 had more than one transfusion.

No haemolytic reactions occurred during the period of the investigation.

Of 10 Rh-negative patients who received multiple transfusions two were found to have developed Rh antibodies.

My very warm thanks are due to the Galton Serum Unit, Cambridge, and in particular to Dr. R. R. Race, for constant help and advice during the course of this investigation.

References

Barton, F. E. (1944). *New Engl. J. Med.*, **230**, 749.
Beck, A., Harrison, C. V., and Owen, J. M. (1944). *British Medical Journal*, **2**, 180.
Boorman, K. E., Dodd, B. E., and Mollison, P. L. (1942). Ibid., **2**, 535, 569.
Butler, B. C., Danforth, D. N., and Scudder, J. (1944). *Surg. Gynec. Obstet.*, **78**, 610.
Callender, S. T., and Paykoç, Z. V. (1946). *British Medical Journal*, **1**, 119.
—— Race, R. R., and Paykoç, Z. V. (1945). Ibid., **2**, 83.
Dameshek, W., and Levine, P. (1943). *New Engl. J. Med.*, **228**, 641.
Darrow, R. R. (1938). *Arch. Path.*, **25**, 378.
Diamond, L. K. (1942). *New Engl. J. Med.*, **227**, 857.
—— (1945). Ibid., **232**, 447.
Drummond, R., Taylor, G. L., and Edwards, J. T. R. (1945). *British Medical Journal*, **1**, 584.
Haldane, J. B. S. (1942). *Ann. Eug.*, Lond., **11**, 333.
Levine, P., and Stetson, R. E. (1939). *J. Amer. med. Ass.*, **113**, 126.
Mollison, P. L. (1943). *British Medical Journal*, **1**, 529, 559.
Moloney, W. C. (1945). Ibid., **2**, 916.
Plaut, G., Barrow, M. L., and Abbott, J. M. (1945). Ibid., **2**, 273.
Race, R. R. (1944). *Nature*, **153**, 771.
Wiener, A. S. (1944). *Proc. Soc. exp. Biol.*, N.Y., **56**, 173.
—— and Peters, H. R. (1940). *Ann. intern. Med.*, **13**, 2306.
—— Silverman, I. J., and Aronson, W. (1942). *Amer. J. clin. Path.*, **12**, 241.
Young, L. E., and Kariher, D. H. (1945). *J. Amer. med. Ass.*, **127**, 627.

The annual general meeting of the Central Council for District Nursing in London was held at the County Hall. The Council now comprises 84 district nursing associations in the metropolitan area, among which grants to the amount of £23,894 were distributed during 1945. These included a public assistance subsidy of £12,000 from the London County Council, and a further sum from the Council of £7,446 on account of the new 50% Government grant for the salaries of nurses. London Parochial Charities contributed £3,842. It was stated that the King Edward's Hospital Fund for London is to entrust the Central Council with the distribution of its annual grant of £2,500, with an addition of £250 for administrative expenses. This grant was originally designed to help to relieve the pressure on the out-patient departments of hospitals. Under the Act of 1907, which incorporated the fund, the interpretation clause cites "nursing institutions" as available for support from the capital income. The L.C.C. public assistance patients visited by district nurses for the purpose of general nursing during the year numbered 6,197, and 152,696 visits were paid; in addition 98,029 visits were paid to 1,442 cases for the administration of insulin. It was mentioned in the report that after July 1 of the present year training in the administration of gas-and-air analgesia will form part of the midwife's course, and proficiency therein will be a necessary part of her final qualification. It is believed that with the help of the College of Midwives some arrangement may be made for early training of midwives in the use of this analgesia, for which there is said to be an increased demand in London. Another point brought out in the report is the great influence of the district nurse in encouraging recruits to the nursing profession. Her special type of work makes a great appeal to young women. Sir Harold Kenyon is the new chairman of the Central Council, in succession to Sir William J. Collins.

SPONTANEOUS HYPOGLYCAEMIA ASSOCIATED WITH EPILEPSY; SUBTOTAL PANCREATECTOMY

BY

N. G. HULBERT, M.D., M.R.C.P.
Temporary Assistant Physician

AND

R. J. McNEILL LOVE, M.S., F.R.C.S.
Honorary Associate Surgeon
West End Hospital for Nervous Diseases

Reports of cases of spontaneous hypoglycaemia treated by partial pancreatectomy are uncommon in this country, although American literature contains numerous accounts of the surgical treatment of pancreatic hyperactivity. The case herewith reported is of interest in that the symptoms of hypoglycaemia were associated with epilepsy, which confused the clinical picture in the earlier stages of the illness. Although, most unfortunately, the patient succumbed from pulmonary infarction, he lived long enough to demonstrate the remarkable improvement which followed subtotal pancreatectomy.

Case History

In 1922 the patient, then aged 41, had his first fit. He had just begun his morning's work when without warning he fell on his face unconscious. He understood that he lay quite still, was uncertain if he bit his tongue, but remembered having "wetted his trousers." He was taken home unconscious. His doctor said that his heart was in a bad state and that he smoked excessively. During the same day he had three further fits, with twitching movements all over the body, and believed that he remained unconscious for some seven hours in all.

A doctor again examined him that evening and the following day. He then referred him to one of the larger London teaching hospitals. Here his skull was *x*-rayed in three positions and a blood test taken. Bromide and luminal (phenobarbitone) were prescribed. Following this the fits recurred, but gradually they became less frequent. After some five years of treatment he enjoyed an interval of about two years with freedom from fits, and so gave up attending the hospital for three months. Cessation of treatment was, however, followed by a recurrence of the fits, and so he resumed his attendance at the hospital and continued the treatment until the outbreak of war, when he was transferred to the Metropolitan Hospital with a diagnosis of epilepsy.

On Oct. 19, 1939, he first attended the general medical out-patients department of the Metropolitan Hospital. He was seen by the house-physician, who considered the symptoms to be compatible with the diagnosis of idiopathic epilepsy. The patient was therefore treated with phenobarbitone, gr. 1 (65 mg.) b.d. On April 19, 1941, he stated that he felt well and was working, and had remained free from fits for two years while taking the tablets.

On Jan. 24, 1942, he first reported the occurrence of peculiar attacks unlike his fits. He had had six of these attacks in the previous two weeks, four occurring on the same day. In the attacks he saw "something terrible coming towards him"—so terrible that he was unable to describe it. He felt, however, that it concerned the Germans, and explained that he had been a prisoner of war for nine months in the 1914–18 conflict, which had greatly upset him, as, though he had often thought that he might be killed, he had never contemplated being a prisoner. After this feeling of "terrible fear" he experienced a peculiar sensation in the stomach, but found that if he gripped the bench hard this might pass off, leaving him very weak; otherwise he would collapse suddenly without further warning. After these attacks, for 24 hours he felt choking in the throat, was unable to speak easily, and wished to cry. He then stated that these "attacks" had been occurring for the past eighteen years as well as the fits, which he had previously described. At first they had occurred at intervals of two or three months, but in the last six months more frequently, and he noted that he tended to have several attacks one month and then a period of freedom. These attacks would occur at any time of day, but were more frequent before midday. He himself had noticed no relation between the attacks and the times of his meals or of his work. His work involved heavy manual labour, and his wife had often said that he should not go to work without more food. He continued on phenobarbitone, but on July 11, 1942, reported seven of these attacks occurring on one day, and was therefore referred by the house-physician for a further opinion.

On July 15 he was first seen by one of us (N. G. H.), and a tentative diagnosis of hypoglycaemic attacks was considered. Admission was arranged to the West End Hospital for Nervous Diseases for further investigation.

Habits.—The patient was a french-polisher. He drank on the average one pint (568 ml.) of beer and smoked 1/2 oz. (14 g.) of tobacco daily. His usual meals were as follows: 6.30 a.m.: A cup of tea and one piece of bread-and-jam. 9.30 a.m.: Breakfast at work—a cup of tea, and a sandwich of bread and bacon. 1 p.m.: A meat or fish dish with bread, followed by pudding or a sweet 3.30 p.m.: A cup of tea and a piece of cake. 6 p.m.: 1 pint of ale 7 p.m.: His main meal—e.g., a chop and vegetable, followed by a sweet or pudding.

Condition on Examination.—He was admitted to the West End Hospital on Aug. 10, 1942. Weight 8 st. 11 lb. (55.7 kg.), his previously highest known weight having been 9 st. 4 lb. (59 kg.). He was well developed and his general nutrition good. He appeared younger than his age. Full neurological examination proved normal. With the exception of some slight emphysema and a few rhonchi in the chest, a comprehensive examination also proved normal. The B.P. was 140/90 and the pulse rate 65–80 and regular. On examination the urine was normal.

Investigations.—The C.S.F. showed a pressure of 140 mm., no cells, a slightly raised protein of 70 mg. per 100 ml., no excess of globulin, and a normal colloidal gold curve. The Wassermann and Meinicke flocculation tests in both blood and fluid were negative. Skiagrams of the skull and pituitary fossa were normal. Skiagrams of the suprarenal region showed no abnormality.

Blood-sugar examinations on Aug. 12 (patient on normal full diet previously) gave the following results. Glucose-tolerance curve:—Fasting, 53 mg. per 100 ml. After 50 g. of glucose: 1/2 hour, 109 mg.; 1 hour, 133 mg.; 1½ hours, 32 mg.; 2 hours, 32 mg. per 100 ml. (Urine specimens fasting and at 1 and 2 hours contained no sugar.)

Aug. 18.—The patient was ordered a diet containing 400 g. carbohydrate a day. Food was taken every two hours by day, and, if waking, in the night.

Aug. 19.—Glucose-tolerance curve:—Fasting, 52 mg. per 100 ml. After 50 g. glucose: 1/2 hour, 80 mg.; 1½ hours, 63 mg.; 2 hours, 72 mg. per 100 ml.

Aug. 31.—Blood sugar on waking in morning, 39 mg.; 2 hours after midday meal, 75 mg. per 100 ml.

Sept. 7.—At 6.30 a.m. the patient had a full breakfast of cereal, milk, and sugar, 2 slices of bread-and-butter and jam, and tea. At 9.15 a.m. he developed an attack, and the blood sugar was found to be 56 mg. per 100 ml. Glucose (50 g.) was then given, and half an hour later the blood sugar was 72 mg. per 100 ml.

A blood count on Aug. 24 showed: Hb, 102%; red cells, 5,260,000; C.I., 0.97; white cells, 7,200. Blood sedimentation rate (Wintrobe, 100 mm. col.), 2 mm. in 1 hour. An electro-encephalogram taken on Sept. 1 (by courtesy of Dr. Dennis Hill) showed the following results: Dominant rhythm, 10 per second—voltage 50 microvolts; regularity good; no abnormal rhythms; stable on hyperventilation. Conclusion: within normal limits.

While the patient was in hospital a number of severe hypoglycaemic attacks were observed, which were not relieved by a diet of 4,000 calories over a period of five weeks. In view of this and of the results of the clinical investigations, and also of the progressive nature of the illness, it was decided to explore the pancreas for an islet adenoma, and, if such were not found, to perform a subtotal pancreatectomy.

Operation (McN. L.).—On the morning of the operation the blood sugar was 66 mg. per 100 ml. The patient's blood was Group A. An upper transverse abdominal incision was made an inch below the ninth costal margin. The rectus muscles were divided by diathermy and the abdomen was opened. The stomach was displaced upwards, and the lesser sac was opened by an incision through the gastro-colic omentum, and the mesocolon was divided. By this means efficient exposure of the pancreas was obtained. A careful search failed to reveal an adenoma, so it was decided that a subtotal pancreatectomy should be performed. A splenectomy was carried out in order to obviate troublesome haemorrhage from the splenic vein, which is normally partially embedded in the pancreas. The tail and body of the pancreas were then mobilized, and about three-quarters of the gland removed with a diathermy knife and immediately fixed for histological examination. The raw surface was oversewn with mattress sutures. After insertion of a rubber drain the abdominal wall was closed in layers. After the operation the patient was somewhat shocked, but recovered from the anaesthetic. His condition steadily improved until the following day, when he suddenly collapsed and died, twenty-five hours after the operation. The blood sugar the morning after the operation rose to 130–140 mg. per 100 ml. (The details of this reading were destroyed by enemy action.)

Necropsy (Dr. Carnegie Dickson).—The abdominal wound was reopened and the intestines found to be distended with flatus. There

was only a slight accumulation of blood-stained fluid in the flanks and in the bed of the spleen. No evidence of fat necrosis was seen. Careful investigation of the mesentery of the bowel, retroperitoneal tissues, and elsewhere showed no accessory pancreas in which an adenoma might have developed. No adenoma was found in the remaining part of the pancreas. The liver was normal apart from moderate fatty degeneration and some venous congestion. Both kidneys showed some cloudy swelling; otherwise there was nothing of note. Both suprarenals were normal. The lungs showed a very patchy congestion, some of which was due to areas of multiple infarction. There was no acute pneumonic consolidation. The pituitary gland and thyroid both appeared normal. The heart and aorta were normal. *The Brain:* The leptomeninges showed a very distinct degree of fibrous thickening over the hemispheres, especially over the vertex, where the convolutions were distinctly narrowed and atrophied. Exaggeration of the sulci in the region of the thickened leptomeninges was as pronounced as in many cases of advanced general paresis.

Histology.—An extensive series of sections of the pancreas stained for islet tissue showed nothing suggestive of hyperplasia or tumour. Complete histological examination of the other organs, including the brain, was not possible owing to the destruction of the specimens by enemy action.

Discussion

The normality of the pancreas in this case is noteworthy. The very full pathological examination, including the search for accessory pancreatic tissue, excluded the possibility of an islet adenoma having being missed at operation.

A lesion of the hypothalamus in the region of the paraventricular nuclei might explain the picture, as Barris and Ingram (1936) have shown in cats that this may cause permanent hypoglycaemia and increased sensitivity to insulin. A similar mechanism is possibly the basis of obesity and hypoglycaemia following some cases of encephalitis.

Hypoglycaemia itself may also produce lesions in the brain consisting of widespread degeneration and necrosis of the nerve cells with corresponding glial proliferation. It has been thought that this is due to the failure of the vital oxidative processes from lack of glucose, probably reinforced by vasomotor disturbances. In the 6 cases described by Lawrence, Meyer, and Nevin (1942) this mainly affected the cerebral cortex, caudate nucleus, and putamen, and to a less extent the cerebellum. It is therefore unfortunate that it was not possible to examine the brain in detail.

The epilepsy of late onset was possibly associated with the hypoglycaemia, as a low blood sugar may induce fits in a patient not normally epileptic, while resistant cases of epilepsy are sometimes found to have low blood-sugar levels.

Whatever the aetiology of this case, however, the severity of the attacks and their failure to respond to dietetic treatment (Whipple and Frantz, 1935) would almost certainly have caused a fatal coma, and so operation was fully justified.

We would like to thank Dr. Worster-Drought for his advice and help; Dr. Carnegie Dickson, Mr. Martin, and Miss Wilson for the pathological investigations; and Dr. Dennis Hill for the electroencephalogram.

BIBLIOGRAPHY

Barris, R. W., and Ingram, W. R. (1936). *Amer. J. Physiol.*, **114**, 555.
Lawrence, R. D., Meyer, A., and Nevin, S. (1942). *Quart. J. Med.*, n.s., **11**, 181.
McCaughan, J. M. (1935). *Ann. Surg.*, **101**, 1336.
Mayer-Gross, W. (1943). *Proc. roy. Soc. Med.*, **36**, 343.
Rayner, M. S. M., Rogerson, C. H., and Jones, J. Gayner (1943). *Lancet*, **2**, 476.
Whipple, A. O., and Frantz, V. K. (1935). *Ann. Surg.*, **101**, 1299.

While a number of Citizens' Advice Bureaux and voluntary organizations in London have had cause to be grateful for the information circulars issued by the London Council of Social Service, there must be a large public which is unaware of them and will be glad to know that they are to be more widely available. The circulars are published at three-weekly intervals, and their aim is to keep the reader informed of social needs and developments—that is, to pass on the varied knowledge the council acquires through its research and information department. They contain, for example, summaries of new regulations and Acts of Parliament, notes on new and existing social services, and comments on new trends in public opinion and social policy. They will be of value, therefore, not only to social workers, but to M.P.s, local government officers, and staff managers generally. The annual subscription is £1 1s., and membership forms can be obtained from the London Council of Social Service, 7, Bayley Street, London, W.C.1.

OCCURRENCE OF OVULATION AND CAUSES OF STERILITY IN METROPATHIA HAEMORRHAGICA

BY

IVAN B. GARTSIDE, M.A., M.R.C.S., L.R.C.P.

(From the Pathology Department, St. Luke's Hospital, Bradford)

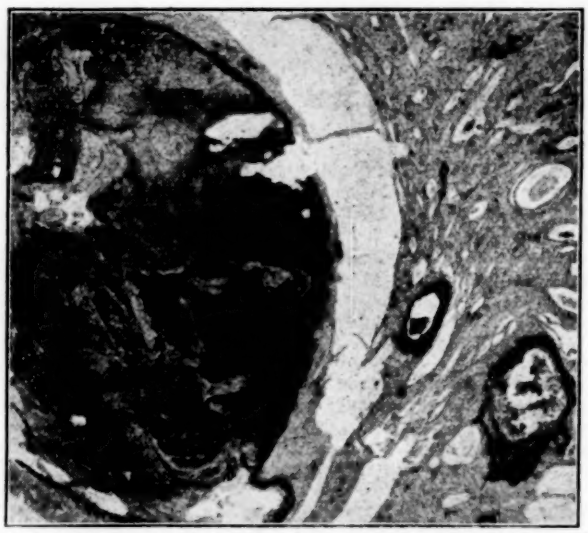
This note records evidence of ovulation in a typical case of metropathia haemorrhagica and suggests that the sterility associated with this condition can be due to causes other than an anovulatory cycle.

Case Report

The patient, aged 40, has five children, the youngest 11 years old. She was admitted for menorrhagia and metrorrhagia of three years' duration, a temporary remission of symptoms having followed curettage two years ago. Since the onset of irregular periods her cycle has been 7 to 8 days' bleeding, usually excessive, the intervals varying from 28 to 35 days, while periods of bleeding up to six weeks' duration have occurred latterly. Subtotal hysterectomy revealed a cystic right ovary about 3 cm. in diameter, the left ovary being normal.

Pathological Findings.—Macroscopic section showed moderate symmetrical enlargement of the uterus due to myohyperplasia, with a thickened haemorrhagic endometrium about 6 mm. in thickness in the fresh specimen. Two small intramural fibroids were also present. Rather more than half-way down the posterior wall a small endometrial polyp-like structure projected about 4 mm. into the uterine cavity, and a portion of endometrium and myometrium including this small mass was sectioned. The gross morbid anatomical characteristics were thus consistent with the clinical diagnosis of metropathia haemorrhagica.

Histology.—The curettage made two years ago followed a fortnight of continuous bleeding and the scrapings were post-menstrual, showing no progesterone activity. In the present specimen (see Fig.)



Photomicrograph showing mass of degenerate chorionic villi and adjacent oestrogenic endometrium. Stained Heidenhain's iron haematoxylin.

the myometrium showed no abnormality, apart from the fibromyomata, while the endometrium presented an extremely interesting picture. It was of " mixed " type, a very few glands showing early secretory activity, while the majority were in the oestrogen phase, some with cystic dilatation. In glands where secretory activity is evident this is often limited to a few cells, the remainder presenting an even and regular luminal border. What appeared macroscopically to be an endometrial polyp proved to be a mass of degenerate chorionic villi, lying mostly outside the endometrium and projecting into the uterine cavity. The penetration of trophoblast into the endometrium was limited to a depth of approximately 0.5 to 1 mm. Decidual reaction was pronounced in the stroma, and the hypertrophied decidual cells showed the intermingling with numerous lymphocytes which is characteristic of early pregnancy. In general, the stromal picture was in marked contrast to the glandular picture.

Discussion

The endometrial glands in the above case present evidence of a prolonged oestrogen phase, although the partial onset of

secretory activity shows the influence of progesterone at this time. The mass of chorionic villi is proof of ovulation, though in the preliminary trimming of the block the ovum was lost.

Those cases of irregular and excessive uterine bleeding in which no local abnormality is detected are now regarded as determined by ovarian dysfunction, and are placed together under the term "metropathia." The histological picture in the endometrial glands of a large group of such cases is one of prolonged oestrogen activity and has been interpreted as evidence either of an excessive oestrogen phase or of an anovulatory cycle. In cases where examination of the pelvic organs has been made a cystic ovary has usually been found, and the underlying pathology has been considered to represent the repeated onset of a cystic degenerative process in the ripening follicle, before ovulation. Increasing attention has been paid to ovarian dysfunction of this type as a cause of sterility (Mazer and Zisermann, 1932; Mazer, Israel, and Kacher, 1937; Jeffcoate, 1935; Mason, Black, and Gustavson, 1938).

The present case shows that ovulation may occur in clinically and pathologically typical metropathia haemorrhagica, while the histology demonstrates a second possible cause for sterility in this condition. It shows that in addition to infrequency or total absence of ovulation, with its relative or absolute reduction in the chances of fertilization, nidation may be incomplete, and this inability of the fertilized ovum to embed itself may be due to the partially or completely unprepared state of the endometrium. In the later phases of a normal cycle pregestational changes take place both in the glands and in the stroma of the endometrium; but in this case stromal change was fairly well developed while glandular response was scarcely apparent. The importance of adequate concentrations of corpus luteum hormone for implantation of the ovum has been emphasized by several authors. Browne *et al.* (1939) state: "A short corpus luteum phase has been observed in some patients with sterility in whom no other cause for infertility has been detected." Allen and Corner (1929) first demonstrated the necessity for progesterone in the implantation of early embryos, and their observations have often been confirmed. The present specimen shows that in habitual abortion where the probable cause is inadequate progesterone production the administration of that hormone during the latter half of the cycle is probably soundly based on the pathogenesis of the condition. Progesterone is commonly stated to produce the pregestational changes in the endometrium, and these changes affect both the uterine glands and the stroma. The stromal reaction is marked in this case, but the glandular one lags far behind. In his monograph Hamblen (1939) calls attention to the evidence that "mixed" endometria probably represent partial inability of the endometrium to respond to the pregestational principle, but evidence is presented here that the response of the endometrium to progesterone can be unequally distributed as between the glandular elements and the stroma, as otherwise the two reactions must be assumed to be separately conditioned, and of this there is as yet no evidence.

Summary

A case is described of metropathia haemorrhagica in which the presence of chorionic villi shows that ovulation had occurred.

The suggestion is made that sterility in this condition may be due not to the absence of ovulation but to inability of the fertilized ovum to embed itself in an endometrium wholly or partially unprepared for its reception.

I am most grateful to Mr. H. A. Hamilton for allowing me to use his clinical findings, and to the medical superintendent, Farnborough County Hospital, for permission to publish this case.

REFERENCES

Allen, W. M., and Corner, G. W. (1929). *Amer. J. Physiol.*, **88**, 340.
Browne, J. S. L., Henry, J. S., and Venning, E. H. (1939). *Amer. J. Obstet. Gynec.*, **38**, 927.
Hamblen, E. C. (1939). *Endocrine Gynaecology*, Baillière, Tindall and Cox, London.
Jeffcoate, T. N. A. (1935). *British Medical Journal*, **1**, 345.
Mason, L. W., Black, W. C., and Gustavson, R. G. (1938). *Amer. J. Obstet. Gynec.*, **35**, 189.
Mazer, C., Israel, S. L., and Kacher, L. (1937). *Surg. Gynec. Obstet.*, **65**, 30.
—— and Zisermann, A. J. (1932). *Amer. J. Surg.*, **18**, 332.

Before the war Mrs. R. G. Edwards raised a fund to provide the best means of combating primary tuberculosis in children by early treatment. It has been decided to devote this fund to the construction at Papworth of a home to be known as the Edith Edwards Children's Home.

TREATMENT OF SULPHONAMIDE-RESISTANT GONORRHOEA BY PENICILLIN

BY

ROBERT LEES, M.D., F.R.C.P.Ed.

This communication is based on observation of a large series of cases treated in the C.M.F. and a smaller number treated in the U.K. It has already been recorded by Campbell (1944) and Bell (1945) that a high proportion of cases of gonorrhoea in our Forces in Sicily and Italy proved resistant to routine methods of treatment with sulphonamides. On further investigation it was found that a considerable proportion of gonorrhoea cases were rendered "sulphonamide-resistant" by use of a dosage scheme which employed 4 or 5 g. of sulphapyridine or sulphathiazole a day for two days. Other cases were rendered sulphonamide-resistant by self-treatment, or by irregular dosage, or by taking a small number of tablets to obscure the diagnosis and thus evade the penalties of venereal infection. Prolonged treatment with high dosage of sulphathiazole or sulphadiazine (6 to 8 g. daily for 10 days), even when reinforced with non-specific "shock" and fever therapy with intravenous injections of typhoid vaccine, failed to produce more than 70% of cures. This must be ascribed to a high proportion of sulphonamide-resistant strains of gonococcus in the population, but no evidence could be found to support the popular theory that the Italian prostitutes were habitually taking small doses of sulphonamides which, although insufficient to cure gonorrhoea, were enough to minimize the signs and symptoms of the disease.

The high incidence of V.D. in the Allied Forces in C.M.F. with the low percentage of cure in gonorrhoea led to the accumulation in hospital of very large numbers of chronic and resistant cases of gonorrhoea, and on arrival in Italy in March, 1944, I found there were over 2,000 such cases. Hospital accommodation was overtaxed; the men were urgently needed for the battles of Cassino and Anzio; accommodation had to be provided for battle casualties.

A series of 1,737 cases of sulphonamide-resistant and chronic and complicated cases of gonorrhoea were treated with penicillin. Many had been treated for weeks or even months without cure, and several had genito-urinary complications of gonorrhoea such as prostato-vesiculitis and epididymitis. No case of metastatic complication of gonorrhoea was included in this series. The worst cases were chosen. The treatment was done with such amounts of penicillin as were available after the needs of war wounds and urgent medical and surgical cases had been met. The diversity of the dosage scheme is to be explained by the shortage of penicillin and the desire to obtain the maximum number of cures with the minimum consumption of the drug. Supplies were available irregularly at that time. It was also urgently necessary to return key-men to full duties as quickly as possible. These factors governed and modified this therapeutic experiment.

Dosage.—Penicillin was given in every case as 10,000 units dissolved in sterile distilled water or saline and injected intramuscularly at intervals of three hours. No pain or abscess formation resulted from the injections.

Results

The results are analysed according to dosage:

Dose	No. of Cases	% Cured
100,000 units	344	98·0
60,000 ,, ...	1,383	94·3
50,000 ,, ...	100	92·0
30,000 ,, ...	50	80·0
Total treated by various doses ..	1,737	93·9

Results of re-treatment with penicillin of the cases (6.1%) noted above as failures are available in 73 cases, and all but one were cured. Such cases were re-treated as soon as possible by penicillin in the same individual dose (10,000 units at three-

was only a slight accumulation of blood-stained fluid in the flanks and in the bed of the spleen. No evidence of fat necrosis was seen. Careful investigation of the mesentery of the bowel, retroperitoneal tissues, and elsewhere showed no accessory pancreas in which an adenoma might have developed. No adenoma was found in the remaining part of the pancreas. The liver was normal apart from moderate fatty degeneration and some venous congestion. Both kidneys showed some cloudy swelling; otherwise there was nothing of note. Both suprarenals were normal. The lungs showed a very patchy congestion, some of which was due to areas of multiple infarction. There was no acute pneumonic consolidation. The pituitary gland and thyroid both appeared normal. The heart and aorta were normal. *The Brain:* The leptomeninges showed a very distinct degree of fibrous thickening over the hemispheres, especially over the vertex, where the convolutions were distinctly narrowed and atrophied. Exaggeration of the sulci in the region of the thickened leptomeninges was as pronounced as in many cases of advanced general paresis.

Histology.—An extensive series of sections of the pancreas stained for islet tissue showed nothing suggestive of hyperplasia or tumour. Complete histological examination of the other organs, including the brain, was not possible owing to the destruction of the specimens by enemy action.

Discussion

The normality of the pancreas in this case is noteworthy. The very full pathological examination, including the search for accessory pancreatic tissue, excluded the possibility of an islet adenoma having being missed at operation.

A lesion of the hypothalamus in the region of the paraventricular nuclei might explain the picture, as Barris and Ingram (1936) have shown in cats that this may cause permanent hypoglycaemia and increased sensitivity to insulin. A similar mechanism is possibly the basis of obesity and hypoglycaemia following some cases of encephalitis.

Hypoglycaemia itself may also produce lesions in the brain consisting of widespread degeneration and necrosis of the nerve cells with corresponding glial proliferation. It has been thought that this is due to the failure of the vital oxidative processes from lack of glucose, probably reinforced by vasomotor disturbances. In the 6 cases described by Lawrence, Meyer, and Nevin (1942) this mainly affected the cerebral cortex, caudate nucleus, and putamen, and to a less extent the cerebellum. It is therefore unfortunate that it was not possible to examine the brain in detail.

The epilepsy of late onset was possibly associated with the hypoglycaemia, as a low blood sugar may induce fits in a patient not normally epileptic, while resistant cases of epilepsy are sometimes found to have low blood-sugar levels.

Whatever the aetiology of this case, however, the severity of the attacks and their failure to respond to dietetic treatment (Whipple and Frantz, 1935) would almost certainly have caused a fatal coma, and so operation was fully justified.

We would like to thank Dr. Worster-Drought for his advice and help; Dr. Carnegie Dickson, Mr. Martin, and Miss Wilson for the pathological investigations; and Dr. Dennis Hill for the electroencephalogram.

BIBLIOGRAPHY

Barris, R. W., and Ingram, W. R. (1936). *Amer. J. Physiol.*, **116**, 555.
Lawrence, R. D., Meyer, A., and Nevin, S. (1942). *Quart. J. Med.*, n.s., **11**, 181.
McCaughan, J. M. (1935). *Ann. Surg.*, **101**, 1336.
Mayer-Gross, W. (1943). *Proc. roy. Soc. Med.*, **36**, 343.
Rayner, M. S. M., Rogerson, C. H., and Jones, J. Gayner (1943). *Lancet*, **2**, 476.
Whipple, A. O., and Frantz, V. K. (1935). *Ann. Surg.*, **101**, 1299.

While a number of Citizens' Advice Bureaux and voluntary organizations in London have had cause to be grateful for the information circulars issued by the London Council of Social Service, there must be a large public which is unaware of them and will be glad to know that they are to be more widely available. The circulars are published at three-weekly intervals, and their aim is to keep the reader informed of social needs and developments—that is, to pass on the varied knowledge the council acquires through its research and information department. They contain, for example, summaries of new regulations and Acts of Parliament, notes on new and existing social services, and comments on new trends in public opinion and social policy. They will be of value, therefore, not only to social workers, but to M.P.s, local government officers, and staff managers generally. The annual subscription is £1 1s., and membership forms can be obtained from the London Council of Social Service, 7, Bayley Street, London, W.C.1.

OCCURRENCE OF OVULATION AND CAUSES OF STERILITY IN METROPATHIA HAEMORRHAGICA

BY

IVAN B. GARTSIDE, M.A., M.R.C.S., L.R.C.P.

(From the Pathology Department, St. Luke's Hospital, Bradford)

This note records evidence of ovulation in a typical case of metropathia haemorrhagica and suggests that the sterility associated with this condition can be due to causes other than an anovulatory cycle.

Case Report

The patient, aged 40, has five children, the youngest 11 years old. She was admitted for menorrhagia and metrorrhagia of three years' duration, a temporary remission of symptoms having followed curettage two years ago. Since the onset of irregular periods her cycle has been 7 to 8 days' bleeding, usually excessive, the intervals varying from 28 to 35 days, while periods of bleeding up to six weeks' duration have occurred latterly. Subtotal hysterectomy revealed a cystic right ovary about 3 cm. in diameter, the left ovary being normal.

Pathological Findings.—Macroscopic section showed moderate symmetrical enlargement of the uterus due to myohyperplasia, with a thickened haemorrhagic endometrium about 6 mm. in thickness in the fresh specimen. Two small intramural fibroids were also present. Rather more than half-way down the posterior wall a small endometrial polyp-like structure projected about 4 mm. into the uterine cavity, and a portion of endometrium and myometrium including this small mass was sectioned. The gross morbid anatomical characteristics were thus consistent with the clinical diagnosis of metropathia haemorrhagica.

Histology.—The curettage made two years ago followed a fortnight of continuous bleeding and the scrapings were post-menstrual, showing no progesterone activity. In the present specimen (see Fig.) the myometrium showed no abnormality, apart from the fibromyomata, while the endometrium presented an extremely interesting picture. It was of "mixed" type, a very few glands showing early secretory activity, while the majority were in the oestrogen phase, some with cystic dilatation. In glands where secretory activity is evident this is often limited to a few cells, the remainder presenting an even and regular luminal border. What appeared macroscopically to be an endometrial polyp proved to be a mass of degenerate chorionic villi, lying mostly outside the endometrium and projecting into the uterine cavity. The penetration of trophoblast into the endometrium was limited to a depth of approximately 0.5 to 1 mm. Decidual reaction was pronounced in the stroma, and the hypertrophied decidual cells showed the intermingling with numerous lymphocytes which is characteristic of early pregnancy. In general, the stromal picture was in marked contrast to the glandular picture.

Photomicrograph showing mass of degenerate chorionic villi and adjacent oestrogenic endometrium. Stained Heidenhain's iron haematoxylin.

Discussion

The endometrial glands in the above case present evidence of a prolonged oestrogen phase, although the partial onset of

secretory activity shows the influence of progesterone at this time. The mass of chorionic villi is proof of ovulation, though in the preliminary trimming of the block the ovum was lost.

Those cases of irregular and excessive uterine bleeding in which no local abnormality is detected are now regarded as determined by ovarian dysfunction, and are placed together under the term "metropathia." The histological picture in the endometrial glands of a large group of such cases is one of prolonged oestrogen activity and has been interpreted as evidence either of an excessive oestrogen phase or of an anovulatory cycle. In cases where examination of the pelvic organs has been made a cystic ovary has usually been found, and the underlying pathology has been considered to represent the repeated onset of a cystic degenerative process in the ripening follicle, before ovulation. Increasing attention has been paid to ovarian dysfunction of this type as a cause of sterility (Mazer and Zisermann, 1932; Mazer, Israel, and Kacher, 1937; Jeffcoate, 1935; Mason, Black, and Gustavson, 1938).

The present case shows that ovulation may occur in clinically and pathologically typical metropathia haemorrhagica, while the histology demonstrates a second possible cause for sterility in this condition. It shows that in addition to infrequency or total absence of ovulation, with its relative or absolute reduction in the chances of fertilization, nidation may be incomplete, and this inability of the fertilized ovum to embed itself may be due to the partially or completely unprepared state of the endometrium. In the later phases of a normal cycle pregestational changes take place both in the glands and in the stroma of the endometrium; but in this case stromal change was fairly well developed while glandular response was scarcely apparent. The importance of adequate concentrations of corpus luteum hormone for implantation of the ovum has been emphasized by several authors. Browne *et al.* (1939) state: "A short corpus luteum phase has been observed in some patients with sterility in whom no other cause for infertility has been detected." Allen and Corner (1929) first demonstrated the necessity for progesterone in the implantation of early embryos, and their observations have often been confirmed. The present specimen shows that in habitual abortion where the probable cause is inadequate progesterone production the administration of that hormone during the latter half of the cycle is probably soundly based on the pathogenesis of the condition. Progesterone is commonly stated to produce the pregestational changes in the endometrium, and these changes affect both the uterine glands and the stroma. The stromal reaction is marked in this case, but the glandular one lags far behind. In his monograph Hamblen (1939) calls attention to the evidence that "mixed" endometria probably represent partial inability of the endometrium to respond to the pregestational principle, but evidence is presented here that the response of the endometrium to progesterone can be unequally distributed as between the glandular elements and the stroma, as otherwise the two reactions must be assumed to be separately conditioned, and of this there is as yet no evidence.

Summary

A case is described of metropathia haemorrhagica in which the presence of chorionic villi shows that ovulation had occurred.

The suggestion is made that sterility in this condition may be due not to the absence of ovulation but to inability of the fertilized ovum to embed itself in an endometrium wholly or partially unprepared for its reception.

I am most grateful to Mr. H. A. Hamilton for allowing me to use his clinical findings, and to the medical superintendent, Farnborough County Hospital, for permission to publish this case.

REFERENCES

Allen, W. M., and Corner, G. W. (1929). *Amer. J. Physiol.*, **88**, 340.
Browne, J. S. L., Henry, J. S., and Venning, E. H. (1939). *Amer. J. Obstet. Gynec.*, **38**, 927.
Hamblen, E. C. (1939). *Endocrine Gynaecology*, Baillière, Tindall and Cox, London.
Jeffcoate, T. N. A. (1935). *British Medical Journal*, **1**, 345.
Mason, L. W., Black, W. C., and Gustavson, R. G. (1938). *Amer. J. Obstet. Gynec.*, **35**, 189.
Mazer, C., Israel, S. L., and Kacher, L. (1937). *Surg. Gynec. Obstet.*, **65**, 30.
—— and Zisermann, A. J. (1932). *Amer. J. Surg.*, **18**, 332.

Before the war Mrs. R. G. Edwards raised a fund to provide the best means of combating primary tuberculosis in children by early treatment. It has been decided to devote this fund to the construction at Papworth of a home to be known as the Edith Edwards Children's Home.

TREATMENT OF SULPHONAMIDE-RESISTANT GONORRHOEA BY PENICILLIN

BY

ROBERT LEES, M.D., F.R.C.P.Ed.

This communication is based on observation of a large series of cases treated in the C.M.F. and a smaller number treated in the U.K. It has already been recorded by Campbell (1944) and Bell (1945) that a high proportion of cases of gonorrhoea in our Forces in Sicily and Italy proved resistant to routine methods of treatment with sulphonamides. On further investigation it was found that a considerable proportion of gonorrhoea cases were rendered "sulphonamide-resistant" by use of a dosage scheme which employed 4 or 5 g. of sulphapyridine or sulphathiazole a day for two days. Other cases were rendered sulphonamide-resistant by self-treatment, or by irregular dosage, or by taking a small number of tablets to obscure the diagnosis and thus evade the penalties of venereal infection. Prolonged treatment with high dosage of sulphathiazole or sulphadiazine (6 to 8 g. daily for 10 days), even when reinforced with non-specific "shock" and fever therapy with intravenous injections of typhoid vaccine, failed to produce more than 70% of cures. This must be ascribed to a high proportion of sulphonamide-resistant strains of gonococcus in the population, but no evidence could be found to support the popular theory that the Italian prostitutes were habitually taking small doses of sulphonamides which, although insufficient to cure gonorrhoea, were enough to minimize the signs and symptoms of the disease.

The high incidence of V.D. in the Allied Forces in C.M.F. with the low percentage of cure in gonorrhoea led to the accumulation in hospital of very large numbers of chronic and resistant cases of gonorrhoea, and on arrival in Italy in March, 1944, I found there were over 2,000 such cases. Hospital accommodation was overtaxed; the men were urgently needed for the battles of Cassino and Anzio; accommodation had to be provided for battle casualties.

A series of 1,737 cases of sulphonamide-resistant and chronic and complicated cases of gonorrhoea were treated with penicillin. Many had been treated for weeks or even months without cure, and several had genito-urinary complications of gonorrhoea such as prostato-vesiculitis and epididymitis. No case of metastatic complication of gonorrhoea was included in this series. The worst cases were chosen. The treatment was done with such amounts of penicillin as were available after the needs of war wounds and urgent medical and surgical cases had been met. The diversity of the dosage scheme is to be explained by the shortage of penicillin and the desire to obtain the maximum number of cures with the minimum consumption of the drug. Supplies were available irregularly at that time. It was also urgently necessary to return key-men to full duties as quickly as possible. These factors governed and modified this therapeutic experiment.

Dosage.—Penicillin was given in every case as 10,000 units dissolved in sterile distilled water or saline and injected intramuscularly at intervals of three hours. No pain or abscess formation resulted from the injections.

Results

The results are analysed according to dosage:

Dose	No. of Cases	% Cured
100,000 units	344	98·0
60,000 ,,	1,383	94·3
50,000 ,,	100	92·0
30,000 ,,	50	80·0
Total treated by various doses	1,737	93·9

Results of re-treatment with penicillin of the cases (6.1%) noted above as failures are available in 73 cases, and all but one were cured. Such cases were re-treated as soon as possible by penicillin in the same individual dose (10,000 units at three-

hour intervals), but the duration of treatment was prolonged until a larger total had been given, as follows:

120,000 units	14 cases
150,000 "	23 "
200,000 "	34 "
240,000 "	2 "

Subsequent experience with subjects not in this series has shown that all cases of gonorrhoea are not cured by re-treatment even with 240,000 units given as 15,000 units or 20,000 units at intervals of three hours. In all such resistant cases it was our custom to cultivate the organism, identify it, and test its resistance to penicillin *in vitro*. In no case was a penicillin-resistant strain of gonococcus found. Such cases are probably explained by persistence of gonococci in a closed focus of infection such as a prostatic abscess or a sealed-off infection of a seminal vesicle.

Notes on a number of patients treated with 50,000 units indicate that this amount is below the optimum dosage. For example, Case 207 relapsed with acute epididymitis twelve days after penicillin treatment, and Case 200 had gonococci in the para-urethral ducts on completion of the five injections of penicillin. Cases 295, 296, 298, and 299 showed gonococci on the third, fourth, ninth, and fifth day, respectively, after penicillin treatment. These cases were all cured ultimately with local treatment and sulphonamides.

Disappearance of sulphonamide resistance seemed to occur in several instances after unsuccessful penicillin treatment. Several patients who had been treated (perhaps badly) with sulphonamides and had acquired a chronic "sulphonamide-resistant" state were not cured by penicillin in the doses employed. But subsequent re-treatment with sulphathiazole produced a rapid and permanent cure. This procedure is not advised in preference to re-treatment with larger doses of penicillin, and success was by no means invariable.

Synergic Effect of Penicillin and Sulphonamides.—A small series of cases were treated with sulphathiazole, 5 g. a day, and 30,000 units of penicillin on the fifth day. The results were not good, and we could not confirm the published reports that there was a marked synergic effect and that 100% cures could thus be achieved quickly. It was considered that such schemes of treatment were unlikely to have much future value, and the experiment was not pursued.

Speed of Action.—The speed of action of penicillin is of some importance in deciding the precautions necessary, such as isolation of patients and sterilization of fomites. In this series it was the practice to take a urethral smear before the fourth injection was given—that is, after the patient had received 30,000 units and nine hours had elapsed since penicillin treatment began. This was also done after 60,000 units and after 100,000 units had been given. Typical results are those recorded (by Major Priest) in one series of 186 cases: after 30,000 units, 16 gonococcus-positive; after 100,000 units, 3 gonococcus-positive. Two of these cases showed gonococci in slides for 12 to 24 hours after treatment, but the organism disappeared without further treatment. The gonococci were swollen and atypical in appearance and did not grow in cultures.

Effect of Higher Dosages of Penicillin.—A smaller series were treated at a later date with 20,000 units of penicillin every three hours until 100,000 units were given. In a series of 204 cases cure was achieved in 97%. This scheme of five doses is much more convenient than ten doses, for treatment can be completed within twelve hours. Ambulatory patients spent one night in hospital and returned to work next morning, injections being given at 5 p.m., 8 p.m., 11 p.m., 2 a.m., and 5 a.m.

The results of treatment with four doses, at four-hour intervals of 25,000 units were less satisfactory. In a series of 200 cases the rate of cure was 92%.

Gonococcal Ophthalmia.—One case of ophthalmia was observed in which the patient had infected his eye, and as the organ was completely sulphonamide-resistant it was feared that the eye infection might be intractable. Treatment was given by 100,000 units of penicillin, administered as ten doses of 10,000 units at three-hour intervals. In addition drops of penicillin solution in a strength of 1,000 units per ml. were instilled into the conjunctiva after preliminary washing with sterile normal saline. The patient made a very rapid and complete recovery.

Gonococcal Prostatitis and Epididymitis.—Many cases of subacute prostatitis and of acute epididymitis were treated according to the dosage scheme of 100,000 units in ten injections. The results were very satisfactory; resolution of the inflamed organ took place rapidly, and was usually complete within ten days without additional treatment.

Observation and Test of Cure.—Cases were followed for three months. Urethral and prostatic smears were taken frequently during the first two weeks, but thereafter observation was, of necessity, at longer intervals and irregular. Before acceptance of cure the patient had anterior urethroscopy, and often a large curved sound was passed in addition. Reinfection was probable in several cases, but every case that had a return of gonococci has been classified as a failure. Cultural methods could not be employed as a test of cure.

Summary

A series of 1,737 cases of sulphonamide-resistant gonorrhoea were treated with penicillin and 93.9% were cured.

The highest percentage of cures in this series was obtained with 100,000 units given as ten intramuscular injections of 10,000 units at intervals of three hours.

Equally good results were obtained in a small additional series of 204 cases with 100,000 units given as five injections of 20,000 units at three-hour intervals.

Less satisfactory results were obtained in a third series of 100 cases treated with four injections of 25,000 units at intervals of four hours.

The lower limit of effective dosage (94.3% cure) was obtained with 60,000 units given as six doses of 10,000 units at three-hour intervals.

Treatment with 50,000 units and 30,000 units produced poor results.

Treatment with sulphathiazole followed by 30,000 units of penicillin did not give satisfactory results in a small series of cases, and the experiment was not pursued.

Seventy-five cases which had failed with primary treatment with penicillin were re-treated with higher dosage of penicillin, and 74 were cured. Subsequent results with cases not in this series suggest that this observation is unduly optimistic. Cases have been observed of persistence of gonococci after 240,000 units given as 15,000 units at three-hour intervals.

Genito-urinary complications of gonorrhoea such as epididymitis responded rapidly to and were completely cured by 100,000 units of penicillin.

This research was made possible only by team work, and a large number of V.D. specialists in C.M.F. co-operated—too many to mention by name. These officers were enthusiastic workers and spared no pains to ensure that the work was done well and records were kept. Lieut.-Col. J. Jeffries and Lieut.-Col. S. H. Bentley and Major Scott Thomson of No. 1 Penicillin Control Team gave invaluable advice and assistance, and organized distribution of the drug. Much of the work was done in tented hospitals with very insufficient assistance, and the R.A.M.C. orderlies who gave the injections deserve the highest praise, for no mishap occurred. I am also indebted to Major-Gen. W. C. Hartgill for his support and for permission to publish these observations.

REFERENCES

Bell, H. J. (1945). *J. R.A.M.C.*, **84**, 21.
Campbell, D. J. (1944). *British Medical Journal*, **2**, 44.

Lord Samuel, president of the British Institute of Philosophy, the Provost of Oriel (chairman), and the Master of Balliol (deputy chairman) have issued an appeal for support for the Institute, which came of age on April 6. Founded under the late Lord Balfour, its council has been throughout composed of leading representatives not only of philosophy but also of science, of politics, and of industry and commerce. For twenty-one years the Institute has been active in promoting the purposes for which it was founded—to serve as a link between philosophers and the everyday world, and to spread such general understanding as can be reached of the universe and of man's place in it. There have been continuous courses of lectures and popular addresses, and a journal—*Philosophy*—is issued once a quarter. The annual subscription is one guinea, which includes receipt of the journal, and there is no entrance fee. Further information and forms of membership may be had from the Director of Studies, British Institute of Philosophy, University Hall, 14, Gordon Square, London, W.C.1.

TREATMENT OF LEWISITE SHOCK WITH SODIUM SALT SOLUTIONS

BY

H. CULLUMBINE, M.D., M.Sc.

AND

G. E. P. BOX

(*Chemical Defence Experimental Station, Porton*)

Lewisite poisoning in animals presents a picture of initial haemoconcentration, due to plasma loss to the soft tissues, followed by a haemolytic anaemia (Cameron and Courtice: awaiting publication). The early picture is indistinguishable from that of shock due to other causes and, as it is readily produced and its severity easily controlled, we have used this method in preliminary studies on the efficacy of sodium salt solutions in the treatment of shock.

Rosenthal (1942–5) has stated that the administration of sodium salt solutions has reduced the mortality in mice suffering from shock caused by thermal burns, trauma, and haemorrhage, the oral or intraperitoneal route being more effective than the intravenous route. Fox (quoted by Rosenthal, 1943) has followed up this work clinically, giving isotonic sodium lactate in large quantities (5–11 litres in 24 hours) by mouth to patients suffering from thermal shock, and all his patients got well. Allen (1943) and Prinzmetal *et al.* (1943) have also reported good results when using physiological salt solutions for the treatment of shock due to thermal burns in dogs and mice respectively. In view of this success in the treatment of shock by large volumes (5–10% of the body weight) of normal saline, it was decided to test the efficacy of such a therapy in lewisite shock.

In the present tests four species of animal were used—viz., mice, rats, guinea-pigs, and rabbits. Subcutaneous injection of lewisite oxide (L.O.) was found to produce uniform and repeatable mortalities in all species. Two methods of assessment were employed. (1) Massive dosages of L.O. given, to produce 100% mortalities rapidly (6–12 hours). Therapies which significantly prolonged the median survival time were tested by method 2. (2) Dosages to produce a high proportion of deaths were given and the percentage mortalities of the treated and untreated groups were compared.

Mice

Mice weighing 20 g. were used throughout. The L.O. was injected subcutaneously in 0.2 ml. of water. As Rosenthal's mortalities are given only for acute mortalities (i.e., the first 48 hours) from shock, our stated mortalities are also acute mortalities. By this means it was hoped that deaths from secondary complicating factors would not complicate the picture.

EXPERIMENT A.—*Results of Dosage of Lewisite Oxide 9 mg./kg. at Z hours*

Quantity of 0·9% Saline given Intraperitoneally (ml.)	When given (minutes)	Median Survival Time in Hours (5 Mice per Group)	Conclusions
Nil		5·9 (25 mice)	(1) 2 ml. saline given. In 30 minutes L.O. produced a significant increase in median survival time (P = 0·03)
0·5	Z − 30	8·1	
0·5	Z	5·7	
0·5	Z + 30	9·3	(2) So did 4 ml. given 2 hours after L.O. (P = 0·05)
0·5	Z + 60	9·3	
0·5	Z + 120	6·2	(3) In general, 4-ml. doses of saline were better the later they were given; 2-ml. doses were better the earlier they were given
1·0	Z − 30	6·8	
1·0	Z	4·5	
1·0	Z + 30	8·3	(4) In general, saline given before L.O. was good (P = 0·05), and 2 ml. saline given before L.O. was good (P = 0·05)
1·0	Z + 60	6·6	
1·0	Z + 120	8·2	
2·0	Z − 30	10·5	(5) All dosages of saline, whether given before or after the L.O., increased the survival time. Saline given at the same time as the L.O. did not
2·0	Z	7·1	
2·0	Z + 30	17·4	
2·0	Z + 60	6·9	
2·0	Z + 120	7·2	
4·0	Z − 30	8·9	
4·0	Z	4·8	
4·0	Z + 30	8·3	
4·0	Z + 60	8·3	
4·0	Z + 120	13·5	

EXPERIMENT B.—*Dosage of Lewisite Oxide 9 mg./kg. at Z hours*

Total Quantity 0·9% Saline Injected Intraperitoneally (ml.)	How Injected	Median Survival Time in Hours (5 Mice per Group)	Conclusions
2·0	2 ml. at Z + 30 min.	6·4	The following methods of administration of saline significantly increased the median survival time:
2·0	1 ml. at Z + 30 and Z + 60 min.	20·0	
2·0	0·7 ml. at Z + 30, 60, and 90 min.	12·3	
2·0	0·5 ml. at Z + 30, 60, 90, and 120 min.	13·2	(1) 1 ml. at 1/2 and 1 hr.: P = 0·001
4·0	4 ml. at Z + 30 min.	11·2	(2) 4 ml. in 3 doses: P = 0·01
4·0	2 ml. at Z + 30, Z + 60	12·0	
4·0	1·3 ml. at Z + 30, 60, and 90 min.	15·8	(3) 4 ml. in 4 doses: P = 0·05
4·0	1 ml. at Z + 30, 60, 90, and 120 min.	14·1	(4) 6 ml. in 3 doses: P = 0·05
6·0	6 ml. at Z + 30	12·9	(5) 2 ml. in 5 doses: P = 0·05
6·0	6 ml. at Z + 30, Z + 60	12·6	
6·0	2 ml. at Z + 30, 60, and 90 min.	13·2	The 4-ml. and 6-ml. therapies are better when given in divided doses over a long period
6·0	1·5 ml. at Z + 30, 60, 90, and 120 min.	10·0	
Nil	—	6·7 (8 mice)	

EXPERIMENT C.—*Dosage of Lewisite Oxide 10 mg./kg. at Z hour. 2 ml. of Salt Solution given Intraperitoneally at Z+30 minutes*

Strength of Solution	Solute	Median Survival Time in Hours (5 Mice per Group)	Conclusions
Nil	Nil	3·61 (8 mice)	(1) In general, the chloride ion is more effective than the sulphate ion
4N	NaCl	2·04	
N	,,	4·79	
N/4	,,	5·01	(2) In general, the sodium ion is more effective than the potassium ion (P = 0·001). The equimolecular mixture of sodium and potassium ions was intermediate in effectiveness (P = 0·05, cf. potassium solutions)
4N	KCl	0·741	
N	,,	0·87	
N/4	,,	5·75	
4N	Equimolecular mixture of NaCl and KCl	1·05	
N	,,	2·69	
N/4	,,	2·40	
4N	Sodium sulphate	1·38	(3) The weaker solutions (N and N/4) are more effective than the stronger (4N) (P = 0·001)
N	,,	1·29	
N/4	,,	3·55	
4N	Potassium sulphate	0·63	
N	,,	0·79	
N/4	,,	1·55	
4N	Equimolecular mixture of NaSO and KSO	0·63	
N	,,	1·05	
N/4	,,	4·47	

EXPERIMENT D.—*Dosage of Lewisite Oxide 10 mg./kg. at Z hours*

At Z−30 minutes 2 ml. of the following fluids were given intraperitoneally (30 mice per group):

Normal saline	Median survival time,	5·7 hours
Distilled water	,, ,, ,,	5·0 ,,
Untreated	,, ,, ,,	4·1 ,,

Hence: (1) The normal saline caused a significant increase in the median survival time (P=0.02). (2) The water did not cause a significant increase in the median survival time (P=0.07).

EXPERIMENT E.—*Dosage of Lewisite Oxide 9 mg./kg. at Z hours. Results from the Intraperitoneal Injection of 0.9% Saline*

Total Dose of Saline	Temp. of Saline	How Injected	Median Survival Time in Hours (5 Mice per Group)
2 ml.	39° C.	2 ml. at Z + 30 min.	8·3
	17° C.	,, ,,	8·1
	39° C.	1 ml. at Z + 30 and Z + 60 min.	7·9
	17° C.	,, ,, ,,	5·2
4 ml.	39° C.	4 ml. at Z + 30 min.	5·5
	17° C.	,, ,,	5·0
	39° C.	1·3 ml. at Z + 30, Z + 60, Z + 90 min.	9·1
	17° C.	,, ,, — ,, ,,	4·8
Nil	—		5·2 (25 mice)

Here (1) if a single dose is given, 2 ml. is effective but not 4 ml., and it is of little importance whether the saline is warm or not; (2) if divided doses are given, 2 ml. and 4 ml. are equally satisfactory, but only the warm saline is effective.

From these preliminary experiments it was concluded that, in mice, for the treatment of shock caused by the subcutaneous injection

of L.O., warm (39° C.) normal saline given either as one 2-ml. dose 30 minutes after the L.O. or in two 1-ml. doses 30 and 60 minutes after the L.O. was the best of the therapies tested. Its effectiveness in reducing the percentage mortality from the acute shock of lewisite poisoning was next tested. The quantities used were: 2 ml., given 30 minutes after L.O.; 1 ml., given 30 and 60 minutes after L.O.; 1 ml., given 60 minutes after L.O. (Rosenthal's technique). 1 ml. sodium lactate, given 30 and 60 minutes after L.O., was also assessed, as Rosenthal had reported sodium lactate to be as effective as sodium chloride.

The results obtained are summarized in the following table:

Experiment	Dosage of L.O. (mg./kg.)	Therapy: Amount of 0·9% Saline	Therapy: Time of Admin. after L.O.	No. of Mice Used	Deaths in 48 Hours: No.	Deaths in 48 Hours: %
F	4	1 ml.	60 min.	50	11	22
	4		Nil	50	21	42
G	4·5	1 ml.	30 and 60 min.	50	22	44
	4·5		Nil	50	42	84
H	4·5	2 ml.	30 min.	50	19	38
	4·5		Nil	50	33	66
I	4·5	1 ml.	30 and 60 min.	20	8	40
	4·5	1 ml. N sodium lactate	30 and 60 min.	20	5	25
	4·5		Nil	20	19	95

Hence all these therapies produced a significant reduction of the mortality, the sodium lactate being as good as sodium chloride.

Rats

Rats weighing 150 g. were used and the lewisite was produced by the subcutaneous injection of 4.5 mg./kg. of L.O. In mice it has been found that 10% of the body weight (i.e., 2 ml.) of saline was effective when given 30 minutes after intoxication. In rats, therefore, we gave 10% of the body weight (i.e., 15 ml.) of 0.9% saline intraperitoneally 60 minutes after the injection of the L.O. The following 21-day mortalities were obtained:

Untreated group of 50 rats: deaths in 21 days 47 (94%)
Treated group of 50 rats: deaths in 21 days 9 (18%)

Guinea-pigs

A preliminary experiment was carried out to determine the optimum conditions for the administration of the 0.9% saline. 500-g. pigs were used, and to each of them 8 mg./kg. L.O. was given subcutaneously at Z hours. Results:

Total Quantity of 0·9% Saline Injected	How Injected	Median Survival Time in Hours (10 Pigs per Group)
12 ml.	12 ml. at Z + 40 min.	4·6
	12 ml. at Z + 80 min.	4·4
	6 ml. at Z + 40 and Z + 80 min.	2·6
25 ml.	25 ml. at Z + 40 min.	7·5
	25 ml. at Z + 80 min.	3·1
	12 ml. at Z + 40 and Z + 80 min.	1·9
50 ml.	50 ml. at Z + 40 min.	5·0
	50 ml. at Z + 80 min.	4·2
	25 ml. at Z + 40 and Z + 80 min.	2·9
Nil	—	4·5

From this experiment it was concluded that 25 ml. of 0.9% saline given intraperitoneally 40 minutes after the injection of the L.O. was the best method of administration tried.

A second experiment was then performed, giving 4 mg./kg. L.O. to 500-g. guinea-pigs followed by 25 ml. of 0.9% saline intraperitoneally 40 minutes later. A significant (P=0.02) reduction in mortality was produced, as follows:

60 guinea-pigs untreated: deaths in 21 days 31 (52%)
60 „ treated with saline: deaths in 21 days .. 20 (33%)

Rabbits

When given intraperitoneally, large quantities of normal saline would a pear to be ineffective in rabbits intoxicated with L.O. and, indeed, in themselves to be harmful:

Number of Rabbits (2 kg.)	Dose of L.O. at Z hr. (mg./kg.)	Treatment	Deaths in 48 Hours
5	6	6 × 50 ml. N saline at Z + 4, 8, 12, 24, 28, and 32 hours	4
5	6	Nil	4
5	Nil	6 × 50 ml. N saline at Z + 4, 8, 12, 24, 28, and 32 hours	2

The effect of a normal solution of sodium lactate was next examined. Preliminary trials suggested that 2-kg. rabbits were least distressed when two 75-ml. doses were given by mouth with an interval of two hours between doses. Rabbits were therefore injected subcutaneously with L.O. (4 mg./kg.), and to half of them, two hours later, 75 ml. of normal sodium lactate was given by mouth, followed by a similar quantity in a further two hours. The resulting mortalities were:

25 2-kg. rabbits, untreated: deaths in 21 days 22 (88%)
25 „ „ treated „ „ 14 (56%)

This reduction in mortality is significant at P=0.01.

Discussion

Rosenthal, using mice, Fox, in humans, Allen, using dogs, and Prinzmetal *et al.*, also using mice, have already reported favourably on the efficacy of sodium salt solutions in the early treatment of shock due to various causes. Large quantities (5 to 10% of the body weight) must be given, and Allen has suggested that shock is a condition of tissue thirst, which can be adequately satisfied only by giving large quantities of physiological saline. Indeed, he intimates that the reason that physiological saline has failed in the past in the treatment of shock is that a sufficient volume has not been given; the presence of haemoconcentration after the administration of saline is not an indication of the uselessness of saline therapy, but merely means that the amount given was insufficient.

Our experiments have shown that large quantities of sodium salt solution do reduce the mortality from shock due to lewisite oxide, but that different species do not respond with equal facility. The order of efficacy of sodium salt solutions in the treatment of shock in the four species tested descends as follows: rats, mice, guinea-pigs, and rabbits. This is also, in our experience, the descending order of the ability of the different species to tolerate large quantities of sodium salt solution.

Rosenthal's work intimates that there is a loss of fluid and sodium to the shocked tissues; our results support this view. We have not had the opportunity of confirming the suggestion that the shocked animal is hypersensitive to potassium, but we agree that the beneficial effect of the sodium administration can be offset by the simultaneous administration of potassium.

Summary

The efficacy of sodium salt solutions in the treatment of shock produced by the subcutaneous injection of lewisite oxide has been assessed in four species of animals—mice, rats, guinea-pigs, and rabbits. It is concluded that large quantities of sodium chloride or sodium lactate solution do reduce the mortality from lewisite shock, but that different species do not respond with equal facility.

Our thanks are due to the Chief Scientific Officer, Ministry of Supply, for permission to publish these results, and to our colleagues at Porton for their advice and criticism.

BIBLIOGRAPHY

Allen, F. M. (1943). *Arch. Physical Ther.*, **24**, 327.
Prinzmetal, M., *et al.* (1943). *J. Amer. med. Ass.*, **122**, 720.
Rosenthal, S. M. (1942). *Publ. Hlth. Rep. Wash.*, **57**, 1923.
—— (1943). Ibid., **58**, 513, 1429.
—— and Tabor, H. (1945). Ibid., **60**, 373, 401.
—— —— and Kabat, H. (1944). Ibid., **59**, 637.

PENICILLIN: INCREASED STANDARD OF PURITY

The Ministry of Health makes the following announcement: Preparations of penicillin were added to the Schedule to the Therapeutic Substances Act by provisional Regulations in August, 1944. As a result of fuller experience of these preparations it has become necessary to replace the provisional Regulations by new ones. This has now been done by the Minister of Health, the Secretary of State for Scotland, and the Minister of Health and Local Government, Northern Ireland. The new Regulations provide for: (1) An increased standard of purity for preparations to be used for parenteral injection, by exclusion of the crude filtrates permitted under the provisional Regulations, and the requirement that penicillin shall be issued only in the form of a dry salt or other dry substance, or in some form approved by the licensing authority. (2) An increase in the minimum potency to 300 units per milligramme for preparations in solid form, and to 2,000 units per cubic centimetre [ml.] for preparations in solution.

Medical Memoranda

Congenital Polycystic Disease of the Liver and Kidneys

The interest of the following case lies in its presentation, with symptoms of hepatic rather than of renal origin. Although the persistently low specific gravity of the urine is evidence of impending renal failure, the symptoms caused by the unusually large cysts which were revealed on laparotomy were superimposed on the more usual clinical picture, and the hepatic condition was serious enough to cause pressure symptoms and transient jaundice. This case was atypical also in the absence of a family history, there being a marked heredo-familial tendency in the occurrence of this condition (Oppenheimer, 1934).

CASE RECORD

A housewife aged 50 was admitted to the London Hospital, complaining of pain and swelling in the upper abdomen, particularly on the right side. One year before admission she suffered from congestion of the lungs and was confined to bed for three months; she was short of breath, coughed up a moderate amount of white frothy sputum, and her legs became swollen. At the end of this illness the blood pressure was high.

Five months after this the upper part of her abdomen, on the right side, became swollen. In a few days the whites of her eyes became yellow and she began to pass black stools and malodorous amber-coloured urine. A week later, at 9 p.m., after a short period of nausea she vomited 1¼–2 pints (0.85–1.14 l.) of dark-red gelatinous material. She vomited again at 1 a.m. and 7 a.m., the vomitus amounting to about 4 pints (2.27 l.) in all. After two days she still felt extremely weak, and the fronts of her legs became discoloured as if bruised. This discoloration gradually disappeared. Some days later she was admitted to the local hospital, where *x*-ray investigations were carried out, and a Casoni test gave a positive result. She began to experience a cramping pain in the right hypochondrium, which was relieved by lying down; it recurred at irregular intervals until operation. Her stools and urine became normal in colour and her jaundice disappeared.

During the interval of about four months between her discharge from the local hospital and admission to the London Hospital she felt weak and generally unwell, with intermittent diarrhoea. She had had no previous illnesses related to the condition under discussion, and her family history contained no other record of congenital abnormalities.

On examination the patient was rather ill-looking though well nourished. Her tongue was moist with slight greyish fur. There was no jaundice, anaemia, or any enlargement of the lymphatic glands. Pulse 82, regular, full; no appreciable thickening of arterial wall. Apex beat not palpable; some evidence of cardiac enlargement: heart sounds one and two heard in all areas; third heart sound audible in mitral area. B.P. 215/175. No abnormalities were present in the respiratory and nervous systems. Abdomen: Generalized swelling of upper right quarter; movement during respiration poor; tenderness and some rigidity over the epigastrium and hypochondrium; kidneys and spleen not palpable; liver greatly enlarged, two distinct masses palpable. No ascites. Urine: Specific gravity consistently low (1006), otherwise normal.

Special Investigations.—(1) Casoni test—negative. (2) Intravenous pyelogram: The right kidney began to excrete in 5, the left in 15 minutes. Excretion and concentration poor on both sides. Neither ureter well seen. The pelvis of the right kidney did not appear to be typical of a congenital cystic kidney.

The patient had never been out of the country, and had never kept a dog or lived in close contact with animals. This, together with the negative result of the second Casoni test, made a diagnosis of hydatid cyst doubtful, and it was decided to perform a laparotomy.

Operation.—The liver was greatly enlarged and contained numerous cystic spaces. Both kidneys were enlarged and nodular and contained several cysts, the largest about the size of a walnut. The largest of the liver cysts was situated in the right lobe. This cyst was drained by a cannula inserted through the centre of the anterior surface of the lobe. About 10 oz. (284 ml.) of fluid was withdrawn and the liver was closed by continuous suture. The aspirated fluid was slightly turbid and contained a few small brown coagula. No hydatid hooklets were found.

Post-operative Progress.—The wound healed well. While in bed she was greatly relieved from the cramping pain in the right hypochondrium, although in the convalescent home she complained of pain of moderate severity when she stood upright. Her blood pressure was 160/100 on discharge, as compared with 215/175 on admission.

COMMENT

Congenital polycystic disease of the liver and kidneys is comparatively rare, and is usually manifested in the fourth or fifth decade. In Moschcowitz's (1906) series of 85 cases of congenital cystic liver 75 had the associated disorder of the kidneys. However, congenital cystic kidneys are said to have associated congenital cystic liver in only 19%. Associated cysts have been reported in other organs, notably the pancreas, but also in the spleen and ovary, and even in the lung. Many cases have unrelated congenital anomalies; thus polydactylism, spina bifida, meningocele, hypospadias, anomalies of the bladder, ureters, and renal pelves, acrania with anencephaly, omphalocele, atresia ani, and haemangioma of the skin have all been reported (Moolten, 1943).

Moolten points out that the disease may follow one of two typical courses, depending on the involvement of the viscera, the limiting factor being the quantity of functioning renal tissue left. He reports the case of a child being born with gross involvement of the liver and kidneys, and which died at 14 days. This he contrasts with the type of case under review, in which death ensues not until the fourth, fifth, or sixth decade, from progressive renal failure. Death is only rarely from hepatic failure, although there may be portal obstruction leading to ascites and splenomegaly.

We would like to thank Sir James Walton and Mr. J. T. Fathi for their encouragement and advice in the publication of this case.

A. P. WATERSON.
P. R. MORGAN.

REFERENCES

Moolten, S. E. (1943). *N.Y. St. J. Med.*, **43**, 727.
Moschcowitz, E. (1906). *Amer. J. med. Sci.*, **131**, 674.
Oppenheimer, G. D. (1934). *Ann. Surg.*, **100**, 1136.

Bicuspid Aortic Valve Diagnosed during Life

The case which is here recorded presents an example of the only available method of diagnosis of an aortic valve containing two cusps instead of three.

CASE REPORT

The patient was admitted to St. Bartholomew's Hospital (Hill End, St. Albans) feeling unwell and suffering from excessive perspiration. At this time he was 15 years of age. The past history is significant. He had been seen by me at the King George Hospital at the age of 2, when the classical systolic thrill and systolic murmur of patent interventricular septum were present. He subsequently went to school and remained in reasonably good health, although he had been noticeably subject to breathlessness when playing games with his school-fellows.

On admission to St. Bartholomew's the temperature, pulse, and respiration were 103° F. (39.4° C.), 120, and 30 respectively. He was pale and slightly cyanosed, and looked ill. There was no clubbing of the fingers. The heart presented the following physical signs: the apex beat was rather forcible and was 1/2 in. (1.25 cm.) outside the midclavicular line; a systolic thrill was felt over the third and fourth interspaces to the left of the sternum; the first sound was replaced by a long harsh blowing systolic murmur, which was best heard in the position of the above thrill, but it was conducted to the apex and to the aortic and pulmonary bases; the second sound was heard everywhere, and was normal in character. The spleen was palpable. Petechiae appeared over the upper chest and over the shoulders a few days after admission, but no other evidence of embolism was observed. The blood culture was positive, giving a growth of *Str. viridans*. He was given penicillin by intramuscular drip, the dose being 250,000 units daily, the total course of treatment extending over four weeks. The effect of this was that, although slight fever persisted for a further period of five weeks, rarely above 99° F. (37.2° C.), the patient ultimately became afebrile and was able to get up and about.

The significant clinical event was a diastolic aortic murmur which became audible after the patient had been in hospital for about four weeks. This murmur was distant, high-pitched, and rushing, and was best heard at the pulmonary base and down the left border of the sternum, although it was present over the aortic base. After he had remained afebrile for four weeks he suddenly developed a right hemiplegia and quickly died.

The post-mortem examination revealed the following essential points: general enlargement of the heart; great thickening of the left ventricle; ventricular septal defect; aortic valve bicuspid and showing vegetations on the posterior cusp; extensive haemorrhage into the left internal capsule, apparently from a ruptured mycotic aneurysm.

There was thus no evidence of aortic valve disease either at the age of 2 or when he was first admitted with his subacute bacterial endocarditis. Infection of the aortic cusp distorted it and produced incompetence. In this way the bicuspid aortic valve, although otherwise undiagnosable, was suspected during life, and was demonstrated post mortem.

COMMENT

The above case provides the more obvious example of the development of infective endocarditis in a congenital heart. Many cases of bicuspid aortic valve occur without any associated congenital defect, and in these the additional diagnostic indication present in the patient here described is absent. When infection of an uncomplicated bicuspid aortic valve occurs the diagnosis is suggested by the appearance of the signs and symptoms of subacute bacterial endocarditis in an individual, usually young, who has been previously carefully examined and in whom there was no evidence of heart disease of any kind. In such a case the sudden appearance of aortic regurgitation, together with infective symptoms, is extremely suggestive of a bicuspid valve.

GEOFFREY BOURNE, M.D., F.R.C.P.,
Physician to St. Bartholomew's Hospital.

Reviews

DEVELOPMENT OF PUBLIC HEALTH ADMINISTRATION

Government in Public Health. By Harry S. Mustard, M.D., LL.D. (Pp. 219. $1.50 or 8s. 6d.) New York: The Commonwealth Fund; London: Oxford University Press. 1945.

"In the past the benefits of modern medical science have not been enjoyed by our citizens with any degree of equality. Nor are they to-day. Nor will they be in the future unless Government is bold enough to do something about it." These words are from President Truman's address to Congress (Nov. 19, 1945) when he introduced his National Health Programme. Dr. Mustard's book is concerned with the history of the influence of "government" on the development of public health in the United States. This publication was sponsored by a committee of the New York Academy of Medicine, on medicine and the changing order. One would hardly have expected that it could have much appeal outside the United States, but Dr. Mustard's treatment of his subject is "national rather than local, general rather than specific, and in terms of trends rather than of events," and the English student of public health administration who reads this book will find much of benefit and interest. The style is compact, workmanlike, and racy, carrying the attention along with effortless ease, and there are so many quotable passages that one regrets the limitations of a short review.

The history of public health in the United States has many lessons for other lands. The struggle between the three "areas" of government—Federal, State, and local (of which the first two have no real equivalent in this country)—resulting in a gradual strengthening of Federal influence; the anomalies of central organization—the fact, for example, that provision for maternal and child health is controlled by the Department of Labor, and completely separate from the Public Health Service; the almost insuperable difficulties besetting any attempts at reform; though the details are often distinctively American, it is easy to appreciate that all these things have had their counterparts in our own history. Perhaps it is a pity that we have experienced nothing similar to the upheaval which followed when the Division of Maternal and Infant Hygiene began operations in 1922, and State health departments first felt the impact of feminine psychology:

"The smugness that existed in many State health organizations was shattered, if not rudely, at least abruptly; precedents, taboos, and sacred relics were brought smashing down; a type of emotionalism, with which male administrators knew not how to cope, arose to plague them. Slovenly programs, and some not so bad, were boldly and openly attacked in one place or another by women's clubs, which seemed not averse to calling names, and giving details."

At its best, public health in the U.S.A. is far ahead of this country, but Dr. Mustard is concerned with its shortcomings, and on these he lays stress. It will surprise many who do not realize the vastness of the country to find that nearly forty-eight millions of Americans live in "unincorporated" rural territory —36.4% of the total population. Nearly one-third of the counties, and some 33,000,000 citizens, of the United States are without any Government-supported health services.

This balanced and far-sighted review, by an expert in his subject who is also unusually gifted as a writer, can be recommended to all who are interested in the history of the development of public health administration.

PRACTICE OF MEDICINE

A Textbook of the Practice of Medicine. By Various Authors. Edited by Frederick W. Price, M.D., F.R.C.P. Seventh edition. Oxford Medical Publications. (Pp. 2,034; illustrated. 42s.) London: Oxford University Press. 1946.

The appearance of a seventh edition of "Price's Medicine" at the end of a devastating war must be heralded as another triumph of British co-operative enterprise, and the editor and his contributors, who burned their midnight oil behind the black-out curtains to bring it about, are to be congratulated on their achievement. It will be welcomed by the army of post-graduate students now returning from war to peacetime medicine, for there can be few to deny that Price is the authoritative text of British medicine. Of the 27 contributors about a third are of emeritus status; but age does not seem to have impaired their accessibility to new ideas, and the book shows as yet no signs of that disintegration of the personality which sometimes overtakes textbooks with advancing years. Hurst's important contribution shows all his vigour and flexibility, and we are reminded once again of his unique place in British medicine. It will be hard to fill the gap his death has made. The seventh edition is fortunately no longer than the sixth, and the editor has clearly insisted on dynamic reconstruction rather than mere hypertrophy; but at more than 2,000 pages it is literally a weighty tome. It is therefore to be hoped that the undergraduate student will use it as a reference book, in which he studies the diseases of which he has personal experience, rather than as a systematic account of medicine through which he is condemned to labour.

Advances since the last edition have been mainly on the therapeutic side, as, for example, penicillin, the newer sulphonamides, the proper appreciation of mepacrine in malaria, thiouracil in exophthalmic goitre. On the clinical side, the chief advance is the recognition of the Rh factor in the blood groups and the consequent explanation of the aetiology of haemolytic disease of the newborn. But if these are the major advances, there are a host of minor ones, as shown by the detailed list of alterations in the preface. It would be impertinent to pretend to criticize this edition line by line without having lived with it and worked with it for months, as we have learned to rely on previous editions. At first glance, however, it appears as reliable and comprehensive as ever, and only those who do not realize how long it takes to see a book through the press these days will grumble that it does not contain the final harvest of knowledge of penicillin. The editor and the publishers have performed a great service for post-war medicine—have performed it so successfully, in fact, that there will soon be a demand for an eighth edition and for contributors of the new generation to work under the skilful co-ordination of Dr. Frederick Price.

PYELONEPHRITIS OF PREGNANCY

Hydronephrosis and Pyelitis (Pyelonephritis) of Pregnancy. Aetiology and Pathogenesis. An Historical Review. By H. E. Robertson, M.D. (Pp. 332; illustrated. 25s.) Philadelphia and London: W. B. Saunders Company.

This illustrated monograph is for the most part a historical review of an important and fascinating subject. It is now known that some degree of dilatation of the ureter and renal pelvis occurs in every pregnant woman, and it is unanimously accepted that in 5 to 7% of these infection occurs at some stage of the pregnancy. In spite of the vast material thus provided for study it is somewhat humiliating to have to admit that such fundamental questions as why the dilatation occurs and how the invading organism is transmitted cannot as yet be answered with absolute authority. No one who is interested in this subject should fail to have a copy of Dr. Robertson's excellent review. In it he discusses nearly 1,000 relevant publications dealing with all aspects of the subject—anatomical, physiological, endocrinal, biochemical, and radiological. The gradual accumulation of knowledge is traced through the records of the years and makes most interesting reading, but the critical reader is reminded repeatedly of how much there is still to be learned.

This book has justified its publication by the scope of its historical survey, but if it succeeds in arousing fresh interest in an aspect of pregnancy which is too often ignored, then its ultimate effect will be far-reaching and the considerable labours of its author will be richly rewarded.

SEX EDUCATION

The Practice of Sex Education. By Dr. Eustace Chesser and Zoë Dawe. (Pp. 157. 10s. 6d.) London: Medical Publications, Ltd.

This useful book is divided into two parts. In the first Dr. Eustace Chesser deals with the subject generally. He stresses the importance of proper sex education and draws attention to its extreme imperfections at the present time. In his chapters on the child, the parent, the teacher, and the school he gives examples of the ill-effects of the usual evasions, and makes a good point that children should be taught the proper scientific names of the genital organs and their various parts, since difficulties often arise due to ignorance among the elders of anything

but inappropriate slang terms. In his last chapter he gives a very brief description of the physiology and Freudian psychology of sexual development. Whether the uninitiated will grasp the latter difficult subject is doubtful.

In the second part Miss Zoë Dawe describes a course of reproductive biology which she gives in schools. It is a moot point whether school is the place where first sexual instruction should be given, but Miss Dawe's course is in itself admirable, and would be specially valuable if the parents had already done their duty in answering the child's questions frankly and truthfully as they arise. Two chapters at the end are very interesting. One enumerates the sort of questions asked by children of the 12–14 age group, either by word of mouth or in writing. The other gives selections from essays written by the girls commenting on Miss Dawe's course.

Of the many books on sex education which are appearing this is one of the most valuable.

PAEDIATRICS

The 1945 Year Book of Pediatrics. Edited by Isaac A. Abt, D.Sc., M.D. With the collaboration of Arthur F. Abt, B.S., M.D. (Pp. 448; illustrated. $3.00 or 18s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

Once again the two American paediatric professors, I. A. Abt and A. F. Abt, have edited a valuable collection of abstracts, and the *1945 Year Book of Pediatrics* is well up to standard. It is perhaps regrettable that the journals forming the basis of the book are essentially confined to the English-speaking world, but in defence it may be argued that only in such parts of the world has it been possible to continue original work in this subject. An adequate proportion of the abstracts have their origin in Great Britain. The editors have added, as usual, their helpful comments in the form of notes at the end of the abstracts. It is satisfactory to observe that although, naturally, the new advances of chemotherapy have their place they have not been allowed to swamp the volume or upset the balance. There are other important subjects, in regard to diagnosis and treatment, which receive due mention. The work contains a "quiz" of twenty questions, and the reviewer regrets to say that he did not secure a pass mark before he read the book. This should be an indication of the amount of new material presented—and in a manner which is easy to assimilate.

Notes on Books

The fourth edition of *Essentials of Body Mechanics in Health and Disease*, by Drs. JOEL E. GOLDTHWAIT, L. T. BROWN, L. T. SWAIN, and J. G. KUHNS, the famous Boston orthopaedic team, is opportune, when we are hearing and thinking so much of the rehabilitation of those who have succumbed to the strains and stresses of war both at the fronts and at home. We cannot be too often reminded that structure and posture of the body influence the function of every system and every organ, and this simple guide to the maintenance of good posture and correction of bad posture will keep these important truths in the minds of all doctors if they study it. In this edition the chapter on foot-strain has been recast so that it is a simple and clear exposition of what goes wrong and how to get it right. The new chapter on geriatrics merely calls attention to the fact that almost all the disabilities of the ageing interfere with body balance, that restoration of this so far as may be possible mitigates these afflictions to a considerable extent, and that their onset may perhaps be indefinitely postponed if correct body mechanisms have been maintained throughout life. The book is published in London by J. B. Lippincott Company at 30s.

In *Gas and Air Analgesia in Midwifery* (Staples Press Ltd.; 5s.) Dr. G. H. T. STOVIN makes an attempt to give the reader more details than are found in similar textbooks, of the manufacture of nitrous oxide and of the mechanics of the common analgesia machines. The administration of gas-and-air analgesia is described well enough, but the book on the whole falls between two stools. The illustrated and well-written section on apparatus is likely to be too much for most midwives, while medical readers may feel that the clinical section could be expanded. The book's chief appeal will be to those who want to know a little more about the "innards" of analgesia machines.

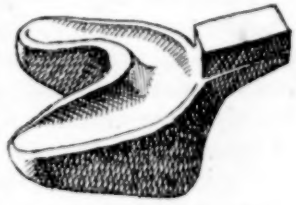
E. and S. Livingstone Ltd., of Teviot Place, Edinburgh, have published a seventh edition of *A Pocket Medical Dictionary*, compiled by Miss LOIS OAKES with the help of Prof. Thomas B. Davie. This little book made its bow in 1933 and has gone through six editions and three reprintings. The price is 4s., plus 4d. postage.

Preparations and Appliances

A GAG FOR USE DURING ELECTRIC CONVULSION THERAPY

Dr. B. ANDRATSCHKE, Mr. J. H. D. MYATT, L.D.S., and Dr. C. H. ROGERSON, F.R.C.P., write from the Cassel Hospital for Functional Nervous Disorders:

One of the most troublesome complications of electric shock therapy is the damage to the teeth which sometimes results from the tight closure of the jaw during convulsion. When a semi-rigid gag such as a padded wooden spatula is used, loosening and even splintering of the teeth which receive the pressure may occur.



At first we thought to overcome this problem by a gag made of a rolled-up piece of rubber cut from an old hot-water bottle. Obvious damage still, however, occurred, particularly when one or two teeth had to bear the brunt of the pressure. Nor was this all, for one of us (J. H. D. M.) was able to demonstrate that in several instances there were serious remote effects of trauma in the form of periodontitis, and later devitalization of teeth which had shown no obvious injuries at the time of treatment other than a little bleeding from the gum margins.

We realized that a new type of gag was needed which would fulfil the following essential conditions: (1) It must secure an equal distribution of pressure over all teeth. (2) It must prevent accidental biting of tongue, lips, or cheek. (3) It must be constructed of a shock-absorbing medium which would remove the dangers of blow and pressure trauma, even in mouths presenting irregular occlusal planes.

Taking these features in order: (1) and (2) We constructed a gag, to what we considered the required shape, in dental wax on a metal framework. By repeated trial in the mouth this was modified to an optimum shape. This shape is, roughly, that of two shallow lower impression trays placed back to back, in one piece, tapering towards the back to conform to the occlusal surfaces. The raised flanges prevent any accidental biting of tongue, lips, or cheek. (3) The gag was made in soft "vela" rubber, which has proved a satisfactory medium. One of the new soft plastics may, of course, have advantages over rubber.

The gag is easy to insert; it is, of course, placed in position before the current is applied. It is almost entirely self-retaining, so that the assistant's attention can be directed towards supporting the lower jaw to prevent the dislocation which sometimes occurs during the initial wide-opening. There is an adequate airway through the teeth and round the gag which can be improved if necessary by hooking back the angle of the mouth with the finger. We are, in any case, in the habit of administering oxygen through a nasal catheter to all patients showing cyanosis after the convulsion.

Extended clinical trial has demonstrated that it fulfils our required conditions. It can be constructed by any good dental mechanic.

MICROMETER SYRINGE

The "Agla" brand micrometer syringe was developed at the Wellcome Physiological Research Laboratories, Beckenham (*Biochem. J.*, 1925, **19**, 1111) for use in experimental techniques requiring the accurate measurement of very small amounts of fluid. It consists of a specially made hypodermic syringe with a standard needle mount, attached by a rigid holder to a micrometer which operates the plunger. By its use volumes as little as 0.001 ml. can be delivered with an accuracy of ±0.00005 ml. Typical uses are chemical microtitrations, serological titrations, injections of laboratory animals with small doses, measurements of small volumes for Langmuir trough experiments, and surface tension measurements. The distributors, Burroughs Wellcome and Co., 12, Red Lion Square, London, W.C.1, hope to be able to resume deliveries of this instrument within the next few months, and invite inquiries. Orders will be executed in rotation when supplies become available.

Allen and Hanburys Ltd. announce the introduction of a new product "fel-evac," a synthetic fatty meal for use in cholecystography to promote the emptying and consequent contraction of the gall-bladder.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY APRIL 20 1946

THE PRESS, THE MINISTER, AND THE BILL

In any dispute both parties believe the right to be on their side, at least in the early stages. When tempers have cooled after the initial clash each party may, even though grudgingly, admit there is something in the other man's point of view. Both then gradually discover a common ground on which to agree and, if they possess more than the wisdom of the serpent, put on one side points of difference when they are regarded by each as fundamental. This is what is known as compromise, and has hitherto been held to be peculiarly an English virtue. The most regrettable and distasteful aspect of any dispute, major or minor, is what we might call the period of misrepresentation. In so far as the present controversy over the National Health Service Bill is concerned, the medical profession has seen its views and statements misrepresented in some organs of the popular press and by individual spokesmen for political reasons.

Apart from deliberate misrepresentation of fact, there is the insidious form that comes from stating only or largely that side of the case which one favours. The medical profession cannot but feel disturbed when it finds the most powerful organ of public opinion in this country—the *Times*—lending its authority to a one-sided presentation of the issues now before Parliament, the profession, and the people. Finding in our esteemed contemporary support for its own policy, it uses the ammunition for its own big guns, and ignores the different expression of opinion voiced in these columns on the Bill as a whole and on the hospital question in particular. Thus the non-medical and informed public which looks to the *Times* for a balanced presentation of majority medical opinion on an important issue is not, we think, provided with it. Instead it finds an attack upon the B.M.A. in this form: "Doctors and laymen alike have naturally looked to the B.M.A. Council's statement on the Bill to learn what issues might be held to justify talk of a fight for medical freedom 'should Parliament prove obdurate.' The document contains no such issues." Yet the *Times* admits the proposals in the Bill mean the nationalization of hospitals, and ignores the argument advanced in these columns that a general-practitioner service on a part-salary basis in health centres owned by local authorities will nationalize general practice. It seems to approve of "the course favoured by the *Lancet*," which "would seem to imply a similar nationalization of all the other medical services"—i.e., of those services in addition to the hospital service. It is just because of these implications that the B.M.A., representing 51,000 doctors, foresees the possibility "of a general refusal of doctors to enter the new service."

A criticism of the B.M.A. which finds expression in our correspondence columns, and in debate and conversation, is that the Association has no constructive plan or views of its own. Some medical men are genuinely perplexed, and an analysis of the position may be clarifying. In 1938 the B.M.A. placed on record its constructive proposals in a pamphlet entitled *A General Medical Service for the Nation*, which, briefly, advocated the extension to the dependants of the insured population of the medical benefits under the N.H.I. Acts, and the expansion of this scheme by the inclusion of consultant, specialist, and institutional services—in other words, a comprehensive health service for the families of the wage-earners. After the war began the B.M.A. set up a Medical Planning Commission, which published its Draft Interim Report shortly before the appearance of the Beveridge report. In view of the fact that Assumption B necessitated an investigation by the Ministry of Health into the medical services of the country, the Association decided not to proceed to a final report of its own Commission but to make its contribution to the Ministry's inquiry if called upon to do so. If we may be wise after the event, this decision may have weakened the Association's position in controversies that have flowed from the publication of the Beveridge report, Mr. Ernest Brown's abortive White Paper, Mr. Willink's White Paper, and Mr. Aneurin Bevan's Bill. Confronted with these successive Government pronouncements the B.M.A. and the medical profession have naturally been put on the defensive and in the position of having to criticize this and that aspect of them for fear they should go by default. The profession has been tactically at a disadvantage, and its antagonists on the platform and in the Press have used this situation to misrepresent it.

It may, therefore, still serve some purpose if we state as plainly as is possible what the position of the B.M.A. is at this moment, bearing in mind that policies may be changed by the Special Representative Meeting in the beginning of May. First of all we have, in common with Mr. Bevan and his predecessors, the aim of providing a comprehensive health service—or perhaps we should say medical service, because health will not come out of any service but out of the conditions that make for health. Second, we agree that all the resources of modern medicine should be at the disposal of everyone: we differ on the means of achieving this. Third, we approve of the Minister's plan for administering the hospital service on a regional basis, and of his proposals for national laboratory and transfusion services.

What are the points of disagreement? There is disappointment that the Minister has not been able to integrate in his Ministry the various services still administered by other Government Departments. The administrative separation of hospital, general practitioner, and clinic services makes, in the view of the B.M.A., proper coordination of the work of doctors taking part in them difficult. What is worse, there seems to be a sharp separation of the general practitioner from the hospitals. The failure to give details of the composition of the Regional Board, and the failure to make the Central Health Services Council a really effective body, are further matters on which the Minister is criticized.

If the Bill is looked at as a whole and in relation to the future evolution of the medical profession, there are two features which the Council of the B.M.A. finds not only disappointing but profoundly disturbing. The first is the proposal to disinherit the voluntary hospitals, and to deprive local communities of the part they should play in the development of local institutions. With the ownership of all hospitals vested in the Minister of Health, given absolute power subject to Treasury discretion, the hospitals of this country will in effect be run by the civil servants of the Ministry—for they are permanent, while the Minister is but a temporary figure. A State hospital service means in the long run that medical men working in it will be wholly or partly State employees working under Civil Service direction. State ownership of hospitals can mean nothing less.

The future general practitioner will, it is proposed, practise in the public service in an area only with the permission of a Government committee, be paid in a substantial part by salary, and conduct his practice in and from a health centre owned and administered by local health authorities. This, it is not unreasonable to assume in view of the Labour Party's declared policy, is the first step to a whole-time salaried basis.

Considering the hospital and the general practitioner plans together, we cannot avoid the conclusion that they form the nucleus of a whole-time salaried State medical service. We may grant that in opposing this conception some men are actuated by selfish motives, just as some of those supporting it are actuated by a desire for power. But doctors individually and collectively have a deep-rooted distrust of authoritarianism in medicine, are not inspired by the effects upon medicine of powerful administrations, and see nothing but harm in a system which introduces an official between the doctor and his patient.

What, then, is left on which the medical profession can work out a constructive scheme in co-operation with the Minister of Health if he will seek this? If the doctor is to put his back into his work let him be rewarded according to his merits and exertion. Among the many motives that impel a man to take up medicine the economic motive is one—and not an unworthy one. Medical men are as unequal in their native abilities as any other group of men: their genes see to this. To attempt to treat them as equal by giving them equal salaries and pooling capitation fees is to attempt to treat them as mass-production units, and the corollary of this is that the patients will come to be treated as so many units of disease. This will lead to unending dissatisfaction, frustration, and resentment—and bad medicine. We would, therefore, suggest that the Minister drop his salary proposal and see that doctors are remunerated on a capitation basis. As to health centres, we suggest they should be started in certain areas, and that different types should be set up. The advances of medicine which are said to necessitate the development of health centres are not in the clinical field but in the laboratory. Therefore to group clinicians will in itself be no solution of the problem. What the practising doctor needs above all is access to the facilities offered by medical science and personal contact with and advice from the men expert in the various branches of this science—the bacteriologist, the pathologist, the biochemist, the radiologist and radiotherapist. What needs grouping are the services provided by these men, and the most suitable centre for the grouping is the hospital, provided that every practitioner in the country has a properly equipped hospital within easy reach of him and his patient—and modern communications should not make this impossible in a compact country like England. The general practitioner does not so much want consultation with another practitioner in a health centre as with the man who has expert knowledge he does not possess himself. If general-practitioner health centres will benefit the patient and add to the convenience of the doctor, then their evolution is to be desired. But the incentive to excel professionally needs an atmosphere of freedom.

The same atmosphere of freedom and independence is even more necessary in the hospital. Each hospital must be free to work out its own salvation within the general framework of the hospital service. Liberty to develop is often wilfully misrepresented as licence to exploit. If liberty is curtailed, then one sure result is that licence will increase. Each hospital in a region must obviously fit into the general pattern; its function and the scope of its services must be defined. The staffing proposals of the Minister, with the setting up of selection committees, will ensure that local favouritism or nepotism will not exert its unhealthy influence. But to cut off the current of local affection and pride in local institutions is to sever something which is really valuable in our national life.

The present Minister of Health has never been cowed by majorities or afraid to express his individual view. The medical profession likewise should not be cowed by the large majority the Minister has behind him in the House of Commons, and we may hope that the Minister may yet negotiate on points of difference between him and a profession which sincerely holds them. Democracy is discussion, and the medical profession wants to discuss these matters before the Bill becomes an Act under the terms of which it will work with reluctance and dissent.

ENCEPHALITIS AND ENTOMOLOGY

In North and South America, in Africa, in the Far East of Asia, and in European Russia there exist forms of encephalitis caused by viruses and transmitted by mosquitoes or ticks. What are the dangers that with the development of aviation these diseases may be spread from endemic areas to other parts of the world and, in particular, to Britain? Health authorities are alive to the danger of the spread of yellow fever by infected mosquitoes carried in aeroplanes. Ought they to be worrying also about a whole series of other virus diseases? Of supreme importance is an understanding of the oecology and epidemiology of the group, for thus alone can we foresee and guard against possible disasters; we therefore read with deep interest of the work carried on in the last few years, especially in America and Russia, and lately reviewed by Drs. Hammon and Reeves.[1]

[1] *Amer. J. publ. Hlth.*, 1945, **35**, 995.

The only arthropod-transmitted encephalitis yet recognized in Britain is louping-ill, a serious disease of sheep, especially along the Scottish border; this is carried by a tick, *Ixodes ricinus*. The virus is known to be pathogenic for man, but is not normally a cause of human disease in Britain. It is, however, serologically very closely related to the virus of spring–summer encephalitis of the forested regions of the Eastern U.S.S.R., and may even be a biological race of that virus. The Russian virus, also tick-borne, is of importance as a cause of encephalitis of man, not of sheep. A tick-borne encephalitis of man occurring in the far east of the U.S.S.R. is said to be caused by a different virus.

Of encephalitis viruses carried by mosquitoes there exists now a terrifying array. We have St. Louis encephalitis and Western equine encephalomyelitis of Central and Western North America, Eastern equine encephalomyelitis, and, in South America and Trinidad, the Venezuelan equine encephalomyelitis. All of these can cause encephalitis in man, and the first two in serious numbers. At least two other, yet unnamed, viruses have been isolated from wild-caught mosquitoes in Colombia and California; they have not yet been certainly implicated as responsible for human disease but can cause encephalitis in mice and other rodents, and neutralizing antibodies against the Californian one have been found in the sera of some encephalitis patients. Across the Pacific, the Japanese B encephalitis is said to have caused over 12,000 human deaths in Japan between 1924 and 1937. It occurs also in China and in Eastern Siberia, where the Russians call it "autumn encephalitis." Now that there are many U.S. troops in Japan and China authorities in the U.S.A. are disturbed at the possibility of the addition of yet another to their already formidable collection of encephalitis viruses in America, for the necessary mosquito vectors are present there. In Central Africa also a virus, West Nile virus, has turned up, closely related to the St. Louis and Japanese B viruses; experimentally it is transmissible by the mosquito *Aëdes albopictus*, and serological tests suggest that it may infect man over a wide area. Though it produces encephalitis experimentally in mice and other animals it is not known whether infection of man is ever accompanied by encephalitis.

The three varieties of equine encephalomyelitis came to our attention because of the losses inflicted on horses, and only later were human infections recognized; it is now believed that the viruses far more commonly infect birds, and especially domestic fowls. Men and horses may develop encephalitis if bitten by infected mosquitoes, but such occurrences are accidents, unrelated to the normal life-history of the viruses. The mosquitoes particularly concerned in transmitting the St. Louis and Western equine viruses are *Culex tarsalis* and *C. pipiens*, both of them species known to feed predominantly on birds. The viruses have been repeatedly recovered from wild-caught mosquitoes (on 75 occasions for the Western equine virus).

A *Culex*–fowl cycle, however, will not adequately cover the life-history of the viruses as we know it. To be satisfied that we understand the oecology we must be able to visualize a mechanism by which the virus survives from year to year. This might be in a chronically infected mammal or bird or in a persistently infected arthropod vector. No one has yet succeeded in showing that chickens or other birds can serve as chronic or latent carriers of the infection. Further, no virus has been recovered from hibernating mosquitoes (5,429 have been tested for St. Louis virus); so the mechanism of survival of the virus through the winter is quite obscure. Nor is there any evidence suggesting that the St. Louis virus can be transmitted through the egg to the progeny of an infected mosquito. Search has therefore been made for other possible arthropod vectors. Experimentally, dog-ticks (*Dermacentor variabilis*) can be infected and transmission through the egg (transovarian infection) occurs; but no naturally infected ticks have ever been found. Quite recently the viruses of both St. Louis and Western equine encephalomyelitis have been recovered from chicken mites, *Dermanyssus gallinae*, and the possibility of transovarian infection in this mite has been shown for the former virus. Even so, this mite may turn out to be a misleading clue, for transmission by the bite of these mites has not yet been accomplished; moreover, virus has only exceptionally been found in mites though readily revealed in mosquitoes in the same localities. It now seems that we must probe deeper still into natural history. Just as human and equine infections proved to be incidental to an infection of poultry, so it now seems possible that the infection-cycle in the fowls may be something superimposed on a basic life cycle with some other vertebrate–arthropod sequence. Possible clues are afforded by the finding of infected prairie chickens, pheasants, pigeons, ground squirrels, and deer in the wild state. Domestic fowls are, from the evolutionary standpoint, very recent introductions to North America and most unlikely to be the original hosts, since the North American viruses have not been recognized in Asia, from which our domestic fowls ultimately derive.

In Britain we have men, horses, fowls, and potential Culicine vectors; so we do well to be on the watch for the viruses. But we may reasonably hope that the essential virus reservoir will prove to be absent over here. We may take comfort from knowing that the Western equine encephalomyelitis virus does not readily spread eastwards across the American continent, nor the Eastern one westwards. But we should be happier for seeing the problem of the natural history of these diseases well and truly settled.

AIR DISINFECTION

The disinfection of the heavily polluted air which we still have to breathe in certain places remains the greatest sanitary reform yet to be achieved. No doubt air-conditioning and more spacious design will play the major part in this reform, but circumstances are likely to remain in which chemical disinfection will also be advisable. Much has been discovered about possibilities in this direction in the past few years, and it is satisfactory to see that the subject is not being neglected. The use of glycols has passed beyond the small-scale experimental stage in the U.S.A. and is being applied in rooms or buildings of considerable size, with careful observations on the results in preventing the spread of air-borne infection. Such a study is reported

by E. Bigg, B. H. Jennings, and I. C. W. Olson[1] : this was conducted in barracks where four identical pairs of dormitories served as test and control areas, the former being supplied throughout the night with triethylene glycol vapour to produce an atmospheric concentration of about 0.0025 mg. per litre (i.e., 1 part in 400,000,000). Needless to say, none of the inhabitants complained of any unpleasant effects. Even this very low concentration reduced bacterial counts obtained from the air, and there is evidence that it also reduced the spread of infection. This is of three kinds : the hospital admission rate among men from the test dormitories was lower than that from the controls ; the spread of an epidemic of mumps was apparently partly checked, and there was a marked reduction in the number of men from whom throat cultures grew haemolytic streptococci. By analysing these carriers into "losers," "gainers," or "keepers," and plotting their positions in the dormitories on diagrams, it is made evident that the spread of this infection must have been largely prevented : there were only 7 gainers in the test series but 32 in the control. Apart from this feature the figures are not impressive, but they are at least promising ; it must be borne in mind that nothing was done in other parts of these buildings to control the spread of infection during the daytime.

The halogens are another class of air disinfectant which shows promise. Most work in this direction has been done with chlorine in some form, but Joyce D. Stone and F. M. Burnet[2] have used iodine vapour in a careful experimental study of the destruction of influenza virus suspended in the air in the form of minute droplets. Mice were introduced into the experimental chamber after disinfectant treatment as an indicator of its efficacy. Almost immediate inactivation of the virus was produced by an atmospheric iodine concentration of 0.1 part per million, whether the virus was suspended in Ringer's solution or human saliva ; on the other hand, if the droplets were desiccated by reducing humidity with calcium chloride an iodine vapour concentration 40 times greater was only partly effective. Iodine is too expensive for general use in air disinfection, but these authors make the interesting suggestion that a gauze mask impregnated with iodine might be a valuable safeguard to medical personnel dealing with highly infectious and dangerous diseases, such as pneumonic plague, pandemic influenza, and psittacosis. In experiments of another kind chlorine was found to be about as effective as iodine in destroying influenza virus. The chlorine disinfectants are cheap enough, but their utility for general purposes is likely always to be limited by their corrosive action on metals.

THE USE OF TUBERCULIN

When the Ministry of Labour received powers to "direct," compulsorily, both nurses and domestics into tuberculosis institutions an interesting administrative problem arose. Though it is doubtful whether this legal power of "direction" has been used to any extent if at all, its consequences have been significant. The Ministry desired a quick way of deciding whether a particular individual could work with safety in the environment of a sanatorium. Not unnaturally, from the point of view of the layman, the tuberculin test was thought to provide the answer. Why not tuberculin-test all individuals before "direction"? Those who understand the nature and mechanism of the tuberculin test realize that this is the very thing which it does not do. Tuberculin does not enable us to diagnose clinical tuberculosis, in adults at least, nor does it afford any reliable guide as to who should, or should not, work in a sanatorium. Nevertheless, the question of how tuberculin should be used for this purpose was referred to a subcommittee of the Ministry of Health's Standing Advisory Committee on Tuberculosis, under the chairmanship of Dr. James Watt, and it has now presented its report.

There is nothing new or revolutionary in this document, but it is interesting to note that the committee recommends Koch's Old Tuberculin rather than the newer purified protein derivatives of Seibert and Long. The latter, which is extensively used in the U.S.A., is not at present manufactured in this country, but can be imported. The committee recommends three graduated doses of Old Tuberculin, used by the Mantoux method of intracutaneous injection. Recommendations are made to secure standardized syringes, and a regular technique which can be used by different doctors with comparable results.

A positive tuberculin reaction indicates, of course, that the individual has undergone primary infection with the tubercle bacillus, and this infection is in most cases a benign symptomless process. A negative reaction indicates that tubercle bacilli have never successfully invaded the tissues. Such facts have long been accepted, but it is their interpretation and administrative consequences which called for careful reconsideration. The committee rightly lays stress on that phase of the individual's life when the tuberculin reaction is changing over from negative to positive. This phase, as Scandinavian work has shown, is the risky one. It is rightly asked whether, in view of the hazards, nurses who are tuberculin-negative should be admitted at all to sanatorium staffs. The committee states categorically its belief that the suggestion to exclude Mantoux-negative nurses is in the interests neither of the nurses nor of the public. In future the proportion of Mantoux-negative reactors in the community is likely to increase, due to our better social control of tuberculosis, and this will occur particularly in the age group from which nurses are recruited.

As for the nurse's own interest, it is clear that a sanatorium nurse is in a much better position than a nurse in a general hospital if a threat of clinical tuberculosis develops. She enjoys on the whole better hygienic conditions while working in the wards, and preventive measures are more likely to be taken. In the future the use of B.C.G. may greatly ease this problem. Nevertheless, careful recommendations are given for safeguarding the health of Mantoux-negative nurses. These recommendations include : (*a*) Repeating the Mantoux test every three months until it becomes positive ; (*b*) *x*-ray films of chest on entry and at regular intervals ; (*c*) special care when the Mantoux test changes from negative to positive ; (*d*) monthly bodyweight records under comparable conditions ; (*e*) the care of the nurse's health to be the responsibility of the senior member of the medical staff. Finally, it is recommended that the examination of individuals to be "directed" should not be done by the local authority's tuberculosis officer but by the employing sanatorium. Too elaborate an inspection tends to give the impression to the candidate that tuberculosis nursing is a much more hazardous occupation than it is.

Before long we imagine the administrative procedure of "direction" will be of historical interest only, as in future no woman will be compelled to work in a sanatorium against her will. If the procedure has done no other good it has at least brought the tuberculin test back into favour, not as a means of diagnosis or of treatment but as a measure of preventive work in tuberculosis, such as was preached by Sir Robert Philip twenty-five years ago.

[1] *Amer. J. publ. Hlth.*, 1945, **35**, 788.
[2] *Austral. J. Biol. med. Sci.*, 1945, **23**, 205.

A VISIT TO AN INDIAN LEPER COLONY

BY

P. P. NEWMAN, M.B., Ch.B.

The Settlement covered about fifty acres (20 hectares), most of which was farmland. The hospital was a low building in a central position, with verandahs connecting each ward. It had a dispensary, though many of the shelves were empty; an operating theatre, scrupulously clean, but lacking suitable lamps and equipment; and also a laboratory, where exceedingly skilful work was performed. Apart from the routine of bacteriological investigation, the staff had collected a whole series of pathological specimens, which they themselves had prepared and mounted.

We were shown some of the case-sheets. A full history of each patient was taken at the clinic with special reference to the family and other sources of contact. Nearly everyone had some family connexion, but the incidence of long-neglected disease was rapidly declining. The people were becoming "leper conscious" and would seek advice and treatment on the first appearance of symptoms. Many of the cases were self-diagnosed, though microscopical section of the skin around the nodules was done as a routine. Little children would come up of their own accord to show a small lesion on the skin they had noticed, and it was these early cases which responded most successfully to treatment. A child born of a leper did not usually develop the disease if it was taken away from the mother soon after birth. The children were kept segregated in a school on the same Settlement, and the parents were allowed to visit them once a week. Eventually these children would lead ordinary healthy lives, perhaps even healthier than the average individual in India, on account of the extra care taken over them. In some instances, where the mother was non-infective, she was allowed to continue to look after her baby while under observation.

The case-sheets carefully recorded the progress of each patient, with accurately illustrated charts of the lesions and of the extent of anaesthesia. Cotton-wool was found too light to detect superficial sensation, and small feathers were used instead. From a glance, it appeared that nodular lesions affected mainly the face and limbs, while the anaesthetic areas were distributed on the trunk. The standard treatment was by injection of hydnocarpus oil in 4% creosote or thymol; results on the whole were good. As many as fifty injections were given with quarter-inch (6 mm.) needles into the skin around the leprous areas, in addition to daily intramuscular injections. Cases were studied over a number of years and there were very few relapses, except in those who contracted venereal disease.

Unfortunately, syphilis was a very frequent concomitant of leprosy. It not only lowered the general resistance of the victim but impeded the action of the drug, and, of course, the syphilis had to be treated concurrently. Tuberculosis was another complication, and such cases could be highly infectious. There was only a small portable *x*-ray apparatus available, so that to differentiate this disease from leprosy reliance had to be placed on bacteriological examination. Because of the similarity of the causal organisms, one had, finally, to rely upon the clinical picture. However, before a case was regarded as non-infectious the doctor had to be satisfied that the organism was absent from twenty consecutive examinations. Then, in the disease-arrested stage, there was a follow-up routine extending over several years.

The Surgery of Leprosy

One had only to do a round of the wards to be struck by a sense of unparalleled achievement and of devotion to humanity. One saw very few cases that were either repulsive or hopelessly riddled with disease. Death from actual cachexia was rare. The disease began as a rule with a simple skin eruption on the arm or leg in the form of nodules, either under the skin or above it. Some cases presented raised vesicular patches. There might be some loss of sensation over a wider area, but early treatment gave very promising results. More often the disease took the form of an insidious contraction of tissue in the fingers and toes, accompanied by a localized area of anaesthesia. Because of the loss of the protective and nutritive function of nerves, complications following injury added to the process, with all the sequelae of secondary infection. In any case, leprosy is relentless in its attack, and very soon there was considerable loss of tissue with subsequent deformity. It was not true to say that digits dropped off from the limbs; rather it was the persistence of a contracting process that gave, however, the same end-result.

The leper then was a subject for amputation. Many hundreds of those people could demonstrate some form of surgical intervention, and, in spite of the inadequacy of equipment, a high performance of operative procedure was maintained. The scars healed well and without much evidence of sepsis. In spite of the loss of half a foot, patients were able to walk with reasonable effectiveness and stability. It was found that when a metatarsal amputation was designed, the disease had often penetrated into the tarsus and a more radical operation became necessary. Yet the degree of mobility and stability after those operations on the feet was out of all proportion to the teachings of textbooks. When it attacked the face, leprosy could be the most devastating of diseases. Some of the victims were unquestionably horrible sights. The nasal cartilages suffered primarily, but even here attempts were made at plastic treatment which could bear comparison with that of the best centres in Europe or America. The men who performed this work were accomplished clinicians, surgeons, and physicians all in one. They had also to be specialists in orthopaedics. Abscesses were frequent in bones and fractures occurred readily. Of the other complications, iritis was the commonest, though actual blindness was rare. Sometimes the disease affected the scalp, producing an alopecia, but apart from a definite thinning of the eyebrows, loss of hair was not an outstanding feature. Leprosy did not seem to precipitate cardiac or gastric disease, and, except for associated syphilis, the mental picture was normal. Some cases of hysteria were present, but leprosy did not adversely influence the intellect. The other form of the disease was essentially an interstitial neuritis, and the ulnar nerve of one or both arms was nearly always affected. There was a round-cell infiltration and thickening of the nerve with resultant wasting and paralysis. Decapsulation sometimes gave marked clinical improvement.

There were about 700 patients, 80 of whom were ward cases; 10,000 treatments were given annually. The disease respected no particular caste, but appeared to be three times more prevalent in the male than in the female. It was, however, a milder form than was found in Burma or China. In the face of untold difficulties—financial problems, shortage of technical staff, inadequacy of equipment, and numerous other encumbrances—a handful of men lived up to the finest traditions of the profession.

Visiting that colony, one could not help being impressed by the cheerfulness and high morale of the patients. Most of them were poor and paid nothing, but there were a small number of private patients who rented a one-room "cottage" at a nominal charge of 7 rupees a month. Even the worst cripples were surprisingly happy. One woman, who was permanently confined to her bed, took great delight in showing us how she could tie a spoon firmly to the stump of her forearm with the aid of her teeth. An old man who had lost both feet was entirely overcome with emotion when he told us how his hands had been useless and rigid, and now he could use them normally. Actually, he had a wide range of movement, though there was much arthritis and also hypothenar wasting. The gratitude of these people was most moving; the medical staff were practically worshipped. Those who could get about—and that included the vast majority of them—would render what assistance they could. Lectures were given to train them in the elements of hygiene and nursing so that they could help each other. There were classes on carpentry and needlework for the younger people, while nearly all of them were able to give a hand on the farm. The Settlement had its own herd of cattle, kept in first-rate condition, and, apart from the actual milking, nearly all the work was done by the inmates. Here was an active, self-supporting community, which was, in its pathetic isolation, an outstanding medical achievement.

CARE OF THE CHRONIC SICK AND OF THE AGED

We print below a summary of an address given to the Parliamentary Medical Group recently by Lord AMULREE, M.D., *and* Dr. E. L. STURDEE.

THE CHRONIC SICK

The first thing to remember about the chronic sick is that they are by no means all of them very old people. Figures from the county hospitals and institutions in Surrey show that in January, 1943, 29% of the chronic sick were under 65 years and 10.5% under 45. Among the latter may be cardiac cases, arthritis cases, and patients with conditions such as undiagnosed pernicious anaemia or "nervous" conditions.

On the other hand, perhaps 25% of the chronic sick are patients with arthritis or hemiplegias, a larger number of whom may be improved to the extent that they are no longer bedridden and may be able to go to their homes. It is therefore desirable that a hospital in which there are patients of this kind has attached to it a specialist in physical medicine and facilities for physiotherapy. Some people hold the view that each general hospital should have a proportion of chronic wards and also small annexes for various types of long-stay patients. Remembering that the elderly among the chronic sick fade imperceptibly into different grades of acute, chronic, infirm, and those requiring little more than skilled nursing oversight, provision for all such grades should be included in a hospital service, though not necessarily on the site of the hospital itself. In 1944 Sir Alexander Macgregor, reporting to the Glasgow Corporation, followed the same argument to some extent. He stated that patients all require a preliminary period of investigation and treatment, before being judged incapable of benefiting by further treatment and that even then patients should still have skilled medical attention available. He therefore considered that the problem of the chronic sick was closely related to that of provision for old persons generally.

Sir Alexander Macgregor also suggested that 10 to 20% of the total beds of general hospitals should be allotted to chronic sick, the difference in the number presumably depending on the type of hospital because "the policy of selection of patients has now reached a stage where the efficiency of the Corporation hospitals is seriously imperilled." His reason for saying this is the present-day tendency of giving priority to acute patients and leaving the others to shift for themselves. He recognizes that it is often a question of housing conditions, because there is a difficulty in looking after long-term illnesses in small houses, and help, either domestic or nursing, cannot always be obtained. For this reason it seems that the provision of some sort of accommodation for old persons who are not entirely capable of looking after themselves will have to be undertaken, and in providing this there is a medical responsibility which must not be overlooked. Proper classification of patients and accurate diagnosis are essential, which means that the expert diagnosis and treatment obtainable in a general hospital must be available for chronic cases and aged, sick, and infirm persons. Dr. Bluestone, superintendent of the Montefiore Hospital in New York, goes further than this and arranges for periodical consultations on long-stay cases, in which specialist advice is again sought in order to decide whether everything possible is being done.

Many of the patients who are kept out of hospital because they seem likely to stay a long time might, if admitted earlier, receive treatment which would prevent their remaining in hospital. General practitioners should, therefore, be encouraged to obtain skilled advice and treatment for patients with conditions such as arthritis or hemiplegias as soon as possible so as to avoid contractures. Sometimes patients are admitted to chronic wards who should be in acute wards, at any rate for a time, which shows the disadvantage of having so-called chronic sick in hospitals of their own instead of allowing them to participate in a general hospital service. It therefore follows that the diagnosis and treatment of the chronic sick should be looked upon as part of the duties of the more experienced medical staff.

An attempt should be made with all infirm patients to house together persons who are likely to mix well, but there will always be patients who are likely to upset others and will need special discipline. For long-stay patients small units with a "homely" atmosphere are necessary, and everything should be done to remove the institutional atmosphere.

Not only is the problem of the treatment of the chronic sick not being met, but most people do not realize that there is a problem.

CARE OF THE AGED

This is a problem which is increasing* because of the ageing of the population, and the housing and other domestic difficulties which make the care at home of elderly persons more difficult. It is also no longer confined to one class of the community. At a hospital recently a retired colonel had to be admitted who normally should not have taken up a bed but that his wife had no domestic help and was unable to get anyone to help to look after her husband, who was suffering from paralysis agitans. In Coventry people of means have been admitted into a hostel run by the Public Assistance Authority because their relatives are unable to look after them. They are not hospital cases and they are paying the full cost of their keep, and in past years would probably have lived at home with a companion. The figures for deaths from accidents during 1945, which the coroner for North London has kindly supplied, show how large a proportion of fatal accidents occur among old people living alone or in conditions where such slight disabilities as they have are not properly looked after.

The solution of this problem is not entirely one of housing because, although those for whom accommodation is required are more or less healthy, they often suffer from some slight disability which may itself get worse or may lead to an accident unless they have care and attention. Others of them are able to look after themselves to a great extent but cannot undertake the whole of the domestic duties required if they live in their own homes without help. Death often occurs from the neglect of a small accident because, if there is no one to look after such people when they are well, still less is there anyone available when they are incapacitated.

Type of Accommodation Required

The easiest and sometimes the best type of accommodation for old people is the *hostel*, which should be run on the lines somewhat of a boarding house or private hotel. Every effort should be made to prevent the hostel becoming like an institution, and rules and regulations should be as few as possible. Attention must be paid to the special requirements of old people, such as the avoidance of slippery floors, of chairs which are not easy to get out of, and of unexpected steps in passage ways which are badly lighted. Arrangements also have to be made for old people to sleep at various times of the day, and as many of them prefer to sleep in their bedrooms the provision of a blanket or something of that kind for use in the afternoon is desirable. Lighting over the beds is a matter that requires attention because old people often like to read or knit in bed. The rooms in the hostels should be of a varying type. There should be some single rooms because it is a mistake to believe that people who are forced to live in communities need no privacy during the whole 24 hours. On the other hand, many people, especially the very old, feel frightened at night and like to feel there is someone else in the room. It is therefore desirable to have rooms which will take two, three, or four beds. More than this is inclined to look like an institution or a hospital ward. Mrs. A. V. Hill has made what seems to be a successful experiment in one of her hostels of having rooms for four persons which are divided up so that each person uses a part of the room as his own where he can keep his own property and where he can do as he likes without interference from the other people sharing the room. The rooms are, to all intents and purposes, bed-sitting rooms, and the inhabitants may have their meals and spend most of the day there. There might be an advantage in having cubicles or at least curtains in a room of this type. In the Surrey County Council's hostel at Farnham the single rooms are much

* In 1900 there were 1,750,000 people over 65 years of age in Great Britain. By 1937 this figure had increased to over 3,750,000; by 1951 it is expected to be 5,500,000—that will be 11½% of the total population. (Dudley Committee's reports on the Design of Dwellings; H.M. Stationery Office, 1944.)

coveted and there is generally a waiting list for them. They tend there to be used by some of the older inhabitants who have shown that they appreciate living in the home.

Cottage Homes

Some authorities, both voluntary and public, have found that small *houses* are appreciated. It is often said from the experience of the Poor Law that old married couples show no desire to live together. But this is probably because when such an opportunity has arisen the couple has already lived some time in the institution and each has become accustomed to a new mode of life. Old people, like children, do not like changes, but where small houses or flats are provided in the first instance they are very popular.

An example of accommodation of this type provided by a local authority is in the Crookston Homes belonging to Glasgow Public Assistance Committee. These homes consist of small cottages, some for married couples and others for single persons, which have been erected on land adjoining the Crookston Public Assistance Institution. The cottages are built in blocks containing either eight cottages for married couples or 16 for single persons. Each cottage has a living-room with a bedroom opening out of it, a small kitchen with an electric cooker, and a bathroom. In the sitting-room there is a coal fire, but there is also a thermostatically controlled electric panel in the bedroom, and, as there is only a curtain between the bedroom and the sitting-room, the temperature of the whole cottage is the same. The residents are supplied with free coal, light, wireless, and full rations as they are all eligible to receive public assistance. They can cook their breakfast, tea, and supper in their own kitchen, but they are supposed to have their midday meal in the common dining-room. This is partly to ensure that each person has at least one proper meal a day and partly as a means of finding out if any of the inhabitants is sick. The kitchens are fully furnished and cutlery and china are provided. The staff consists of one trained and one assistant nurse with about six domestics. A doctor in the neighbourhood visits daily and is available on call. The matron of the Public Assistance Institution is also able to supervise the cottages. It is proposed eventually to house about 250 persons in these cottages. Each block of cottages will have a common dayroom. A large assembly hall, which has been used for an emergency hospital during the war, will be used for the midday meal. These cottages are expensive, being about 55s. a week per person, or 27s. a week if the cost of maintenance and buildings and repayment of loans is excluded, but they seem to serve their purpose. There are very few rules and the inhabitants can go out as they like and spend the night with relatives.

An example of cottage homes supplied by a voluntary association is the Bethany Homestead, Northampton. These homes were started in 1926 as a charitable venture by the Congregationalists and Baptists of Northampton. Since then a few cottages have been built for the Wesleyans, and there is said to be a project to build a block for the Church of England. The Homestead consists of two-room cottages for healthy old couples. No rent is paid, but the occupant pays for gas, water, and food. They live their own life but are expected to be in their cottages by 10.30 p.m. On the estate there are also 18 rest-rooms where are housed people who are not quite fit enough to look after themselves entirely, and there is also a so-called nursing home which consists of three four-bedded wards, one two-bedded ward, and three single-bed wards. The resident nurses live in the nursing home, and the staff consists of the matron, who is a State-registered nurse, and two or sometimes three assistant nurses, with about 15 unskilled persons to help. There are also a housekeeper and a domestic staff of six. In the cottages used by the healthy old couples there is, over the bed in each cottage, a bell which connects with the nursing home in case of sudden illness. The inhabitants of the cottages are usually looked after by their own doctor, but there is a local doctor on call in an emergency. The inhabitants of the rest-rooms have a certain amount of domestic help and take their midday meal in the common dining-room, but the furniture in their rooms is usually their own, except for the bed, which is supplied by the Association.

It has been suggested by many people that homes, of whatever kind, limited entirely to old people are not satisfactory, and Dr. Banks mentions in his report in the *Bulletin of the Ministry of Health* for June, 1945, that there is much to be said for the development of the cottage estate such as has been set up in Amsterdam. There are people of all ages on the estate, but it is possible to make special arrangements to ensure that the aged and infirm in their own homes have such medical and nursing care as well as domestic assistance as is required. Curran and his fellow authors take the same view in the avoidance of segregation (*Lancet*, Feb. 2, 1946).

Whatever kind of accommodation is provided, whether in flats, in cottages, or in hostels, some selection of the inhabitants must be made. In some hostels, both voluntary and public assistance, there are people with some disability such as a chronic cough or a habit of excessive snoring, who tend to make friends and agree to share a room, but, both at Glasgow and at Farnham, the inhabitants know that if they cause trouble to the rest of the community they are liable to find themselves in the "poor house." It must be recognized that there is always likely to be a certain proportion of persons who are impossible to fit in anywhere except under strict institutional discipline.

Staff for Homes and Hostels

It is difficult to be dogmatic about this because, as was found during the war with residential nurseries, a highly trained person without a sense of vocation may not be as successful as a person without academic training who is enthusiastic about the work. So far as inquiries have gone at present, one of the best matrons in charge of a hostel for old people is a State-registered nurse, but a woman councillor in East Ham who was voluntarily looking after a hostel for the aged seemed an excellent type for the work, although perhaps liable to take risks owing to her lack of knowledge. A member of the Friends' Relief Society, writing in the *Quarterly Review of the British Red Cross* for October, 1945, states that in most of the Friends' Hostels for the Aged they have had married couples as wardens, but they have found that there should be someone responsible for the health of the old people in each hostel, although this need not be a State-registered nurse. A knowledge of home nursing and ability to decide when a doctor is necessary are the chief requirements, and Mrs. A. V. Hill thinks that there is a future for the assistant nurse in old people's hostels. It is easy to add to the number of the staff in the interests of safety, but so much depends on the type of old person (healthy but feeble, infirm, lame, etc.) that it is difficult to lay down standards, especially as a few enthusiastic persons will probably achieve better results than a larger number working by the clock.

Even the best type of master and matron trained in the Poor Law service is likely to be unsuitable in homes and hostels of the kind desired because they tend involuntarily to give an institutional air to the place. Further investigation may result in a clearer idea of the amount and type of staff required in homes and hostels for the aged, but what is quite certain is that people doing this work must avoid anything that seems like interference with the inmates and must adopt a helpful and sympathetic attitude towards them.

Heating and Lighting

There is a good deal of difference of opinion about the heating of homes for old people, and personal preferences and the difficulty of obtaining additional heat at the present time unconsciously colour some people's views. In general terms, it seems advisable that roughly the same temperature should be maintained all over the home. In some hostels old people have been seen resting in the afternoon in their bedrooms with the clothes over their heads to keep out the cold. It should be possible to ventilate the rooms from time to time during the day without running the risk of the inhabitants becoming cold when they go into another room. Central heating of a hostel prevents the crowding of the inhabitants round the one fire with the consequent institutional atmosphere which this produces. As old people often cannot see very well, the question of lighting is important. Bracket lights in common-rooms as well as a central lamp are necessary, and, as old people spend a good deal of time in their bedrooms, it is essential to have a light over the bed so that they can read or knit. Care must also be taken that the passages are well lighted, especially at danger points, such as occasional steps.

INTERIM CONCLUSIONS

Some members of the medical staff of the Ministry of Health have been studying the problem of the aged and the long-term sick patient for some time, but have only touched the fringe of it, because the ramifications are so many and because the subject is comparatively new and a number of associations and individuals are trying out different methods. This is satisfactory because in process of time ideas on the subject will become more defined. It is hoped shortly to visit homes for people of higher incomes, and this may modify some of the statements above.

One thing that seems certain is that there are at the present time four classes of patient filling hospital beds unnecessarily. First, patients with diseases which have become chronic and difficult to treat because they have not been placed under skilled treatment soon enough. Secondly, patients who have a disability but are taken into a hospital bed only because their friends are unable to look after them. Thirdly, patients who are suffering from an illness which could have been prevented

(for example, the result of an accident) if there had been someone at hand. Fourthly, patients who have been admitted with so-called chronic diseases which, under treatment, have improved so that the patients could return home but that they have nowhere to go.

In some hospitals there are, unfortunately, patients who have been allowed to remain in bed for months or years, without proper classification or treatment, but it is to be hoped that these will cease to be found in the new hospital services. If satisfactory accommodation can be made either under the Housing Acts,† or in other ways, for all types of people of the later age periods—that is to say, the apparently healthy, the slightly feeble, the infirm—many people now spending long months and years in hospital may be kept about, able to lead interesting and often useful lives until near the time of their deaths.

SCOTTISH STATISTICAL RESEARCH BUREAU

Following discussions which have taken place between the four Scottish Universities and the Faculty of Actuaries, a Scottish Statistical Research Bureau has been set up to bring together those who have statistical material which requires investigation and analysis, and those who have the experience to deal with the subject statistically.

It is known that valuable material is constantly being uncovered in many spheres of activity, but very often no attempt is made to bring out the facts which an investigation of such data might reveal, because the necessary time, labour, and statistical knowledge are not readily available. It is hoped that the new Bureau will close this gap. For example, a doctor who has collected data relating to a certain disease may be put in touch with an actuary who, as a practical statistician, will collaborate with him in getting at the facts behind the rough data. Larger investigations will also be undertaken, and it is intended that the Bureau, with its practical facilities, will act as a kind of clearing house. It should thus be the means of bringing to fruition research in the medical field and other fields which might not otherwise be carried out and the benefit of such research therefore lost to the community. During the war the practical benefits of statistical research were abundantly proved, whether the research applied to weapons of war, to industry, or to disease and sickness at home or in the jungle. What has been successfully applied during war could usefully be applied in peace in greater measure than has been the case in the past.

In its initial stages the Bureau will act only on behalf of individuals or associations of individuals who approach it through the Scottish Universities or the Faculty of Actuaries, which bodies will be the original members. It is intended, however, that other organizations interested in statistical research, in any field whatsoever, may later become members.

The Bureau will function through a central committee representative of the members. The first chairman of the Central Committee is Mr. J. G. Kyd, Registrar-General for Scotland, who is president of the Faculty of Actuaries. The secretary is Mr. E. Waugh, Faculty of Actuaries, 23, St. Andrew Square, Edinburgh.

† A housing association is defined in the Housing Acts. Such an association does not trade for profit but can construct, improve, or manage houses for the working classes. A local authority may, with the approval of the Minister, make arrangements with the housing association to help it in its objects.

German and Austrian children are to benefit from the latest relief plans of the Swedish Red Cross and the Save-the-Children Society, which have the support of the Swedish Government Committee for International Relief. Plans for Germany include feeding centres in Hamburg and the Ruhr, and probably also in Berlin, distribution of clothes, and medical assistance from Swedish doctors and nurses; those for Austria, daily meals for 10,000 Viennese children between the ages of 3 and 6 years, and distribution of clothing. The relief generally is to be given in all four occupation zones. Other news of Sweden's generosity is that Leningrad has received a second gift from the Swedish Government Committee for International Relief, this time of equipment for nine hospitals. The first gift, a year ago, was chiefly of medicines and vitamin preparations.

Reports of Societies

POSTMATURITY

At a meeting of the Section of Obstetrics of the Royal Society of Medicine on March 15, with Prof. F. J. BROWNE in the chair, Mr. A. J. WRIGLEY read a paper on the problems of postmaturity. He said that he had felt considerable dissatisfaction with the meaning of the word, the diagnosis and management of the condition, and the lack of teaching on the subject. Many of our difficulties were self-made, in that we acted on the assumption that if any pregnancy continued over the calculated date for its termination the foetus would become so large as to give rise to difficulty in delivery. That this was not the case had long been recognized. Almost half the babies of 9 lb. (4.0 kg.) and over born at St. Thomas's Hospital in 1945 had been delivered before the calculated date. Another series of cases showed how often a small baby was born after the expected date. Some textbooks stated that prolonged pregnancy did not necessarily result in a large child, while others ignored the subject or stated that the child was always above the average weight and length. Textbooks were also contradictory on the diagnosis of postmaturity. The majority of authors had written on the assumption that postmaturity was synonymous with excessive development of the foetus. Radiography was not much help in diagnosis. The appearance of ossific centres varied considerably and was of little value in assessing the maturity of the foetus. Many writers gave no advice on the management of women who had passed the expected date of confinement; some advised induction when the foetus was postmature but did not indicate when that state was reached, while others avoided interference. Weekly examination and induction were advised when the child was large and labour overdue. Estimation of the height of the fundus would never help, especially in the last weeks of pregnancy. Girth measurement varied in different women and did not greatly increase when the foetus was postmature, because there was no corresponding increase in the amount of liquor amnii. The following, Mr. Wrigley said, were additional physical signs of postmaturity: (1) when the foetus was truly postmature it was large, its weight being well above 7 lb. (3.1 kg.); this could be appreciated by repeated clinical examinations. (2) Concurrent with the increase in size was increase in strength and tone, which resulted in the whole foetus becoming more rigid; this rigidity could be recognized on clinical examination. (3) The amount of liquor did not appear to increase in the last weeks of pregnancy, and therefore as pregnancy advanced the foetus became more easy to palpate. Thus there might be a large rigid foetus easily felt in a uterus that contained little liquor, perhaps so little that the uterine wall might be thought to outline the foetal position and some of its limbs. These signs woud be observed with reasonabe certainty ony if the doctor had watched the patient at regular intervals throughout the pregnancy and at frequent intervals in the later weeks. The amount of liquor varied in different women, but in all women there should be a relative, and as full time was reached a noticeable, apparent decrease in amount.

Mr. Wrigley held that ideas on pregnancy and its termination needed revision. The "expected date" could only be approximate and it would probably never be possible at any time during the pregnancy to make a more accurate forecast. Three variations might occur: the expected date might come and go and labour start some days or weeks later with the delivery of a large postmature baby, or with the delivery of a normal-sized baby or even a small baby, or, at about the calculated date, a large oversized baby would be delivered that showed every characteristic attributed to postmaturity. An apt simile was that the pregnant uterus should be regarded as an oven, and just as there were slow ovens and quick ovens so would there be a variation in the time expected in the production of a cooked joint or a mature foetus. As a result of the differing advice in the textbooks doctors adopted one of two courses: either every woman who had passed the expected date received a medical induction or she was "left to Nature"; in the latter case the patient occasionally delivered herself of a large truly postmature baby,

perhaps with great difficulty and risk to both. There was no justification whatever for advising that a week or a fortnight should elapse after the expected date and then labour should be induced. If this course was adopted a number of women would go into labour later than they should be allowed to do, or, alternatively, the baby might not be mature. Another objection to routine induction was that it frequently led to repeated medical inductions. Apart from the physical upheaval of such proceedings, they were accompanied by a variable degree of anxiety which increased with each failure to bring on labour. It should be a rule that if there was justification for a medical induction there was justification for surgical induction. Doctors should continue to give patients estimated dates for their confinement, but should cease to believe and to teach that every woman would mature in the calculated 40 weeks. There should be no instructions to terminate pregnancy as a routine at the 40th week, 41st week, 42nd week, etc. Doctors should teach that by repeated observations at regular intervals there appeared a combination of physical signs that would indicate the course of action; that it might well be necessary to terminate pregnancy at the 38th week for a baby that was obviously large; and that in the absence of these physical signs interference was bad midwifery.

At the beginning of the meeting Dr. TITCOMB and Dr. DEANE showed a film of the movements of the human foetus, with a commentary by Sir Joseph Barcroft.

NUTRITION IN THE COLONIES

A conference of the Nutrition Society on "Nutrition in Colonial Territories" was held on March 2 at the London School of Hygiene and Tropical Medicine.

Col. WALTER ELLIOT, who took the chair, suggested that the present food restrictions in this country might at least make us more sympathetic about the nourishment of less highly civilized populations. The standards of nutrition in the Colonies varied greatly in different localities. Even in neighbouring territories, moreover, dietary habits and prejudices, such as religious bans on eating meat, might vitally affect the nutritional status and physical development. Striking evidence was obtained during the war to show that the nutrition of East African natives fell short of European standards. Troops recruited in Sierra Leone were very susceptible to tuberculosis, but after receiving European diets during the Burma campaign their resistance was much improved. The quantity of food was no less important than quality. A Chinese delegate to a League of Nations conference had once remarked that all Chinese were undernourished all the time. The key to better nutrition lay in improved agriculture, starting in the intelligent application of the principles of soil science.

Dr. B. S. PLATT displayed a map showing the disposition of the Colonies, which have a total of 66,000,000 inhabitants. The largest population of 21,000,000 was in Nigeria, while at the lower end of the scale were the Falkland Islands with 2,000 humans and about 60,000 sheep. Density of population was greatest in Hong Kong, and least in Nyasaland. The nutritional problems to be faced, and the state of public health in general, varied greatly in different localities. Thus the neonatal mortality rate of 327 per 1,000 in Hong Kong was much higher than the rates in most other Colonies, and about ten times higher than in New Zealand, which had the world's lowest rate.

Malnutrition might be quantitative, resulting in varying degrees of starvation, or qualitative, in which case the characteristic deficiency diseases would ensue. The state of nutrition in populations might be assessed either by clinical examination of selected groups of people or by the detailed investigation of the quantity and quality of the food on which they subsisted. While under ideal conditions the same answer should be obtained by both methods the results in practice might sometimes be divergent. In this event suspicion should fall first on the dietary survey, which should be checked for any possible inaccuracies or unsuspected complicating factors. The first clinical signs of malnutrition were physically ill-defined. Mental symptoms were more easily recognized, and included apathy, and an attitude to authority commonly described as "bloody-mindedness." Remarkable improvements in the mentality of African troops were found when they were transferred from native to European rations. Clinical evidence of malnutrition was obtained recently in Ceylon, when the war made it necessary to substitute wheat flour and coconut for part of the rice in the diet. As a result the death and neonatal mortality rates, and the incidence of sore mouth and of the skin condition known as "phrynodermia," were all substantially increased.

Dietary Surveys

In dietary surveys it was necessary to inquire how much of the various foodstuffs were eaten, and then to express the amounts in terms of the basic nutrients. Dr. Platt displayed a long list in which he had tabulated data on hundreds of native foods. Differences in calorific intakes might be expected between communities accustomed to hard or light labour, and in practice the requirements of African natives were found to vary according to whether they lived on the shores of a lake, at the summit of a hill, or on the slopes of a hill in such a position that energy was constantly wasted in moving up and down. In assessing the amounts of food eaten, however, care must be taken to avoid a false impression caused by the time of the survey coinciding with a temporary shortage of supplies.

The traditional African ration of 1 lb. (454 g.) of maize and 1/2 lb. (227 g.) of beans daily left great scope for improvement, and an organized programme of action was necessary to improve the standard of nutrition and of living in general. The soil must be preserved and watered, and pests controlled. A correct balance must be struck between crops grown for home consumption and "cash" crops, grown for export. The food value of crops must be assessed in relation to the labour expended, and the present enormous waste of effort reduced by the introduction of modern methods and efficient farm implements. The cassava, from which tapioca was obtained, gave a high return in calories per man-hour spent in its cultivation. The storage of food, and its preservation by dehydration, must be arranged so as to provide for seasons when crops were scarce. Finally, there was a need for social progress. The native must be educated, and be given the incentive to work for a higher standard of living. Some system of apprenticeship was wanted to enable skilled trades to be passed on. Excessive fecundity should be prevented by birth control.

In carrying out this programme about 75% of the money available for improving nutrition in the Colonies would have to be spent on personnel. Field working parties were being organized, and were to consist of teams, each including a doctor, agronomist, administrator, and "nutritionist."

Dr. Platt's paper was followed by a film showing the achievements of the Middle East Supply Centre during the war. The activities of this organization took place mainly in Egypt. The problems of irrigation, soil preservation, afforestation, locust control, and the breeding and insurance of livestock were all clearly illustrated. In addition it was shown that the fight against starvation and economic collapse was made difficult by the human element, since Arab farmers were persuaded by enemy propaganda to conceal their stocks of much-needed grain.

Problems of Malnutrition

Dr. H. S. STANNUS spoke next on malnutrition in colonial territories. In his opinion unknown deficiency diseases greatly outnumbered those already known. In the early stages of malnutrition, before the tissues sustained obvious injury, functional abnormalities occurred which were difficult to assess, but which were associated with increased liability to fatigue, irritability, apathy, depression, giddiness, loss of tone, and neurasthenia. Clinical observations, laboratory investigations, and dietary surveys all helped in the diagnosis of malnutrition. In clinical examinations grave doubts had recently been thrown on corneal vascularization as a sign of riboflavin deficiency, and on keratitis pilaris as a sign of vitamin A deficiency. Moreover, it was grossly incorrect to attribute pellagra simply to deficiency of nicotinic acid. Good evidence had been obtained, however, associating macrocytic anaemia with deficiency of folic acid. The condition of retrobulbar neuritis and the so-called infantile pellagra seem to be of nutritional origin, but had not yet been ascribed to deficiency

of specific nutrients. Laboratory methods of investigation had the disadvantage that heavy apparatus and fittings were needed, and they were therefore of little use in the field. In dietary surveys it must be remembered that the staple articles of diet might be supplemented by many seemingly small seasonal extras, varying from wild honey to caterpillars, flies, and grasshoppers, which might have considerable nutritional importance. Diets in gaols might by supplemented by food brought in by friends of the prisoners.

The human subject could sustain life on widely different diet patterns. While the Eskimo ate nothing but flesh, and the Oriental coolie nothing but rice, the prejudice for any particular diet might be very strong. In the Bengal famine some Indians, when offered wheat instead of rice, preferred to die of starvation. The individual seemed capable of subsisting at different planes of activity, and after a period of undernourishment the metabolism becomes adjusted so that a new state of equilibrium might be reached at a reduced body weight and with curtailed physical activity. Dr Stannus expressed misgivings as to how far an attempt at European standards of diet and civilization would improve the lot of the African tribes. He predicted that the disuse of native customs would be attended by over-population, continued malnutrition, and a high incidence of syphilis.

General Discussion

Dr. J. G. REED said that valuable information had been collected in prisoner-of-war camps in Hong Kong and Singapore, which should be compared with similar data from British, American, Dutch, and Australian sources. One important generalization which had been reached was that malnutritional disease was not clear-cut and constant. While syndromes such as that characterized by retrobulbar optic neuritis were extremely widespread in many camps, the evidences of malnutrition overlapped and interlinked in a complex pattern. Food yeast, local fermentation products, and easily grown green vegetables had proved valuable as supplements.

Dr. N. C. WRIGHT dealt with the relation of animal husbandry to human nutritional needs. During the earlier stages of Colonial agricultural development emphasis was invariably placed on plant husbandry, and except in predominantly pastoral areas the parallel need for the development of livestock husbandry was overlooked. In the 1939 report of the Colonial Nutrition Committee the most striking finding was the almost complete absence of milk, and indeed all animal products, from most Colonial dietaries. Although this lack did not apply to natives of East Africa, Northern Nigeria, and the Middle East, animal husbandry even in these great pastoral areas was very inefficient. The animals suffered from overcrowding, drought, disease, and gross undernourishment at certain seasons of the year. The necessity for using oxen for draught purposes reduced the milk yield, but with improved breeding and nutrition the native strains could be much improved. In the predominantly settled areas, comprising mainly the territories of the wet tropical belt, the animal population was disproportionately low in relation to the nutritional requirements of the human population. In the whole field of animal nutrition new ideas must be probed, new methods investigated, and new projects boldly planned and executed. Dr. W. R. WOOLDRIDGE reminded the Conference that the Colonial Veterinary Service had already done much useful work on the control of epizootic diseases, such as rinderpest.

Miss AUDREY I. RICHARDS discussed sociological factors in relation to Colonial nutrition. The Colonial Social Service Research Council could help in finding out what changes in the social habits would be necessitated if the proposed improvements in dietary standards were to be obtained. Mr. A. J. WAKEFIELD congratulated Dr. Platt on the good progress of his campaign for improved nutrition in the Colonies, and promised agricultural support. He indicated the plight of the West Indies, where concentration on a single export crop, such as sugar, had prevented the adequate production of home-grown foodstuffs for a dense and rapidly increasing population. Prof. R. FIRTH discussed the influence of social factors, such as hospitality and religious prejudices, on the consumption of food. Sir JOSEPH BARCROFT, in philosophic vein, reflected that it had been the lot of most mankind to be undernourished from time immemorial, and that any systematic attempt to improve the position might lead to larger populations, resulting only in an intensification of the state of chaos which civilization had already reached.

In summarizing the day's proceedings Col. ELLIOT said that the conference had been fortunate in hearing first-hand comments from several experts from over-seas. While the film shown earlier in the meeting had emphasized the more romantic aspects of the struggle for improved nutrition, the real need was for "day-to-day" plugging on the part of the administrators. It was essential that the desirability of "profit" crops should not lead either to the natives neglecting their own food requirements or to an undue drain on their soil. Nitrogen, in the form of meat or cattle cakes, and phosphates in the form of bones, should not continually be exported to temperate zones without provision for their replacement. A higher standard of living, based on larger crops, could not be expected from an impoverished soil.

Correspondence

The Health Service Bill

SIR,—The medical profession, as we all realize, is now at a critical period in its history when far-reaching decisions, which will affect the course of medical practice for generations, must be taken. As one who is within a few years of the end of his career and who will be little affected personally by the National Health Service proposals, I am wondering whether the action taken during the last few months by the leaders of the profession is best calculated to ensure that the Bill, when it finally passes through Parliament, will produce a medical service which will provide to the patient a first-class medical service and will, at the same time, enable the medical practitioner to work under conditions satisfying to him. Week by week in the *Journal* we see a spate of high-sounding words which bemuse rather than instruct, and we seem, as a profession, to be in grave danger of scattering our energies in promulgating principles some of which stand very little chance of being accepted by the community at large or being sympathetically considered by Parliament.

Medical men have the reputation—not always deserved—of being poor business men; but there never was a time when the profession required more urgently the business instinct of knowing what is possible and what is not and concentrating on the possible. We have in front of us a Bill for the drastic reorganization of medical services promoted by an able Minister, with a large majority in Parliament, who conscientiously believes that his proposals are in the best interests of the country. He is well aware of the almost chaotic conditions under which the public health, hospitals, and medical services have been working for many years, how defective in many respects these services are, and how urgently drastic reforms are needed. Having all the facts of the previous proposals before him, he produces a Bill which, with all its faults, is a most courageous attempt to reduce to some kind of order the existing services. I have been associated with the negotiations in regard to the new medical service from the commencement, and as a result am convinced that no scheme could be produced which did not contain some anomalies, so complicated have the services become during the course of the last fifty years. The Minister's scheme has its anomalies—notably the separation of clinic services, in some cases, from hospitals—but, as it seems to me, it is fundamentally a sound scheme which, if amended in some particulars, and if generously administered, would provide an efficient medical service for the community.

My criticism of the B.M.A.'s policy, so far as I know it, is that it seems to be dissipating its energies in a cloud of words instead of concentrating effectively on the one single point which affects so vitally the future of the profession. The only point of really vital importance to the profession, as it seems to me, is that of its freedom from official control. This point can be readily grasped by the layman, who is going to be the final arbiter on this question. Such control is to be imposed

in the Bill in two ways—by prohibition of the sale of practices and by the proposal to remunerate practitioners largely, but not entirely, on a salary basis. Admittedly the sale of practices in the past has not always produced satisfactory results in some areas, but the alternative of prohibition as a cure for a not very serious evil appears absurdly drastic, and the penal clause, involving fine and imprisonment, seems a new departure in English jurisprudence. If, however, the profession fails to secure the omission of this proposal from the Bill, doctors in the service will be appointed by the local Executive Council and their freedom of action, and even their freedom to practise the profession for which they have been so long and so expensively trained, will in the long run be grievously curtailed. The second point in regard to payment by way of salary is of equal importance. Even if remuneration is at first 50% salary and 50% capitation fee, this basis of payment can at any time, by regulation, be changed to 100% salary and 0% capitation fee. The power to make regulations, usually without an affirmative resolution of both Houses of Parliament, conferred in the present Bill and much other legislation gives to a Minister, and, of course, the Civil Service, great powers which may, or may not, be used wisely. This power could be used to reduce still further the freedom of the profession, of course in the interests of efficiency, in the future. Regulations are essential in connexion with a service of this kind, but, in view of their importance, it is to be hoped that the Association will attempt to procure an amendment of Clause 69 (2) of the Bill providing that *all* regulations shall be laid in draft before Parliament and approved by resolution of each House.

I am aware, of course, that the B.M.A. has the matters referred to above in mind. The purpose of this letter is to make a plea for simplification of procedure and for concentration on one or two vital points. If the Minister can be persuaded to accept the proposed amendments his scheme for the reorganization of medical services will not become thereby less efficient or more difficult to administer, and he will gain the sympathy and support of a free profession willing and anxious to co-operate in the provision of a first-class service.

The dropping of proposals for the prohibition of the sale of practices and for any payment by way of salary will admittedly be in the interests of the medical profession, though it will not adversely affect, and might improve, the efficiency of the service. Let us admit this frankly instead of pretending that all we do is in the interests of our patients. The medical profession has, in the past, deserved well of the community. In return we would now ask the community to allow us to retain a similar measure of freedom to that still accorded to other professions.—I am, etc.,

The University, Liverpool. W. M. FRAZER.

SIR,—The many letters and the divergent opinions expressed on the Health Service Bill in the *Journal* of April 6 seem to confirm the opinion that I have formed, after many years' experience with medical committees—that the doctor is a poor politician because he sees many sides to every question and finds it difficult to make up his mind; sometimes he requires a long time to come to a conclusion, and may even wish to reconsider the position when new evidence is produced.

I trust that the B.M.A. is going to produce a scheme of its own as an alternative to Government suggestions. I am well aware that attempts have been made for many years to persuade the Government to accept a scheme, but I do not know that the exact details of such a scheme have been published. I trust that the leaders of the profession in the Royal Colleges and the Association will lead, and will not wait to see which way the tail of the profession is going to wag.

There are some facts that are perfectly clear. This Bill affords powers to the Minister of Health which will enable him to dictate to the individual doctor or hospital; indeed, he has already shown his hand in his attitude to the (so-called) Negotiating Committee, for no negotiations of any kind have taken place: "Ministers do not negotiate." This Bill is a Socialistic political move aimed at ensuring a sound actuarial background for the national insurance scheme; it will tighten up certification, make every practitioner who signs certificates a State-paid, State-controlled servant, and render him liable to inspection. The Bill is not a constructive measure for the improvement of national health. There is no offer of adequate numbers of hospital beds; there is no hope of the immediate production of new health centres; and without a considerable increase in the numbers of doctors, dentists, and nurses the scheme is quite unworkable in 1948.

To call the scheme a "comprehensive health scheme for all" is most misleading. If there were five times as many dental surgeons, all working, they could not do the work necessary to provide a comprehensive dental scheme for the population of this country, and to make this Bill a practical measure the number of general practitioners must be at least doubled, and the number of consultants in all branches of medicine, surgery, obstetrics and gynaecology at least trebled. When a consultant's opinion costs nothing the public will demand that opinion on every possible occasion, and the practitioner will, naturally, support them. A good doctor is always glad to receive confirmation of his opinion and assistance in his management. Is Mrs. William Jones in Wales to be debarred from the benefit of the opinion of Sir Thomas Smith of Harley Street when she is ill? And if she is so debarred, why?

But already there are variations in the interpretation between the Bill itself and the Summary, as pointed out by Dr. N. Cridland. Which are we to believe? No doubt the Minister himself will ultimately decide what he means. There are some optimists in the profession, such as Dr. J. L. Henry, who suggests that we must not organize any resistance, even if we dislike the Bill, and should use our not inconsiderable influence in Parliament to bring about modification. I can only suppose that Dr. Henry has not had time to read or listen to reports on Parliamentary procedure. This Government has a large majority and they are not accepting any single modification or amendment to any of their proposals. Their legislation is forced through whatever the opposition may be.

Dr. M. J. Bradlaw's letter appears most important. The Minister is going to offer compensation for loss of practice on the death or retirement of a practitioner. The basis of such compensation has not yet been discussed, but the compensation will be in the form of Government bonds carrying 2¾% interest; the net return from these will be about 1½%. But there are even more serious aspects of this suggestion. I suppose every doctor enters his profession with the general idea of earning a living, and after this the various doctors are differentiated by the other factors which govern their practice. The able practitioner is ambitious to establish a reputation to do his patients good; to widen his practice; to obtain greater skill, knowledge, and senior qualifications; and in the past his interest in his practice has been such that he has taken the greatest care in securing a suitable partner or successor (perhaps a son) who will continue the tradition of the practice, and pride in personal achievement.

All ambition to build up a good practice will be killed under a nationalization scheme. If the Socialist Government had started in another way and had said: "We wish to improve the medical service of the country; we wish to increase the numbers of doctors and dentists, nurses and midwives; we want to make every doctor more efficient by providing better education, more secretarial help, and more domestic staff; health centres with every convenience for high-class practice; extra hospital beds so that all the sick may be treated under the best conditions; and we shall be glad to have suggestions from the medical profession for the co-ordination of such services," then the medical profession would have been keen to co-operate. At present they seem to be divided between those who view the Bill with apprehension and yet apathy because they do not know where to turn; and those who hope, like myself, that we are not going to see our profession and our hospitals nationalized by a Socialist dictatorship.—I am, etc.,

Birmingham. K. DOUGLAS WILKINSON.

SIR,—How stimulating it is to read a letter like that of Dr. William Gray (April 6, p. 542) after the wails and lamentations about the Bill which usually appear in your pages! I am in entire agreement with everything he says. I, too, have thought, since my student days twenty years ago, that the question of money in the doctor-patient relationship should be entirely eliminated. I thought then, and still think, that an ill person is in need of the best help available, and that the question of

payment for this help ought not to arise at all. The theory advanced by the B.M.A. and so many members of our profession that a salaried doctor would not care for his patients to the very best of his ability is an insulting one. Surely any doctor who would be influenced by money received is not worthy of being a doctor at all.

Perhaps Dr. Gray has not perused the correspondence about the Bill in the *Journal* as carefully as I have. If he has he must surely have learnt with amazement how despised the doctors in the public health service are by the rest of the profession. Because we receive a salary and do not collect fees from our patients we presumably care nothing for the welfare of our patients and have no loyalty towards them but only towards our employers. I admit that these doctors, so indignant about their practices being taken away and a salaried service substituted, might pity the public health officers for having so little business acumen as to be content with a bare living wage rather than piling up a bank balance, but I think it time that someone protested against the idea that we do not consider our patients or do all we can to help them.—I am, etc.,

WINIFRED M. COPPARD,
Asst. C.W.O.

Dunmow, Essex.

SIR,—At the B.M.A. meeting in Birmingham on April 7 I voiced my fears that we would fail to present a solid united front in our fight for the rights of the individual. I suggested that the B.M.A. should become a trade union, this being the most efficient way to fight the dictatorship of Whitehall. In reply Dr. Dain explained that the Government would not license a new medical trade union.

I am ever mindful of the debacle of 1911, and feel that the majority of medical men would be more content to know for certain that there would be no backsliding and no blacklegs, and that we would all stand shoulder to shoulder in our refusal to co-operate with the Government until the seven essential Principles laid down by the B.M.A. are incorporated into the National Health Service Bill. Let us recognize that we are fighting for the liberty of the individual and the safeguarding of the rights of the public as well as our own profession. We are the first body of people to be attacked; but, make no mistake, if we go back on our Principles and refuse to fight we shall not be the last. I therefore suggest that local meetings be called immediately, and all medical men requested to sign a pledge that they will refuse co-operation until the Government amends the Bill to incorporate our Principles. We shall then know where we all stand, and Mr. Bevan (who now relies upon splitting us) will know also. Without our co-operation the Bill, even if passed into law, is moribund.

I further suggest that the colleges and the universities be approached and requested to postpone all further final examinations until Mr. Bevan listens to reason. This step, combined with a huge publicity campaign, will make the Minister of Health realize that the medical profession and the British public will not submit to dictatorship, whether it be Nazi or Socialist.

The time to act is now and not when the Bill is passed into law. So let us go forward shoulder to shoulder, secure in the knowledge that we fight not only for the principles of a great and honoured profession but for the elementary rights of the whole British democracy.—I am, etc.,

MARK J. BRADLAW.

Birmingham.

SIR,—G.P.s are confronted with a difficult situation in being asked to formulate an opinion on the new N.H.S. Bill in the absence of details about remuneration. Without that information it is impossible to determine whether the average doctor will be reasonably contented in the new service, and, in consequence, the public satisfied by the service. Although G.P.s would embark on the scheme with the best intentions, the present number would possibly be unable to cope happily with the greatly increased number of patients seeking their services. If remuneration for the increased work is considerably less than his present income what attitude is any doctor likely to adopt? It would be difficult for him not to view many of his patient's attendances as unnecessary, and the changed attitude of doctor to patient would inevitably result in an unsatisfactory service. The majority of doctors cannot divorce conscientious service to the public from financial considerations, however good their intention to do so.

Basic salaries and capitation fees are discussed, but in the profession there is no unanimous desire for either or both. An alternative has not been put forward which would prevent a doctor from feeling that he was being imposed on and the patient from getting the impression (rightly or wrongly) that his calls on the doctor were unwelcome. Would the attitude of the doctor to his patients be less disturbed and his patients receive greater care and attention if the financial reward were to vary with the amount of work done and not depend only on the number of persons on his list? Would not a small capitation fee plus a scheme of payment on lines similar to those of the National Deposit Friendly Society and the Army civilian practitioner bills make for a more satisfactory service? Each patient in the National Health Service will probably have a medical record envelope as used at present in the N.H.I., and it could contain cards for the purpose of claiming fees (not from the patient). Some method of preventing dishonest claims could surely be devised.

It is generally believed that the National Health Service Bill will be passed, but it can fulfil its aims only with the full co-operation of G.P.s. Satisfactory remuneration, based on raising every patient to the status of private patient, would ensure successful operation of the service, and the objects for which the Bill is introduced could be achieved. But in its present incomplete form one cannot possibly decide in favour of the Bill.—I am, etc.,

S. H. EVANS.

Creswell, Derbyshire.

SIR,—Among the many letters published in the *Journal* on the subject of the new Health Service Bill there have been few on two matters which concern general practitioners most intimately. These two are compensation and remuneration.

The offer of compensation is the most juicy of the baits so far thrown to us, and as such is the one most likely to lead us into error. It is said to be made in order to compensate us for the loss of the capital value of our practices. We may ask, Why should there be any loss? There can only be loss of that capital value if we are denied the right to buy or sell our practices. There will be no loss if we retain that right. If, therefore, we accept compensation in any shape or form we have at once thrown away not only the capital value of our practices but also our independence, and we have committed ourselves irrevocably to accept the terms of service offered us from time to time, whether we like them or not. From past experience we can be certain that these terms will not be generous.

Why, then, should we so easily allow ourselves to be bamboozled into suffering this unnecessary loss of capital value? Why should we not avoid it by insisting on our own right, in the same way as any other law-abiding citizen of this country, to buy or sell the goodwill of our practices, not only to whomsoever we choose but at whatever time we choose, whether we take part in the new service or not? The trap for the surrender of our liberty is well laid. Let us not walk into it so blithely. Let us tell Mr. Bevan in no uncertain terms, "Our practices are not for sale. We do not want compensation for loss of capital value, for there need be none. We insist on the right to buy or sell our practices at all times. We will not be bought out and have a 'forced loan' imposed on us." This question of "compensation" thus becomes vital if we wish to retain any freedom from control and regimentation which, it is obvious, is the primary object of the present proposals.

Dependent on the right to buy or sell, as set out above, is the point that we cannot accept a basic salary. Naturally we cannot buy or sell a salary. It follows that remuneration must be by way of capitation fee. Here again we must insist that the capitation fee should be adequate, guaranteed, and constant, no matter how many patients a doctor has on his list. There is no justification whatever for the penalty of expecting us to treat any particular patient for a smaller fee than that decided upon, simply because we happen to have been chosen as medical attendant by a certain number of other patients.

Incidentally, by refusing to accept "compensation" we would be saving the country the not insignificant sum of £66,000,000.—I am, etc.,

C. N. COHEN.

Newport, Mon.

The Minister Listens

SIR,—Sir E. Graham-Little (March 30, p. 503) appears to be very annoyed at my letter (March 16, p. 411), but that is no reason why he should distort it beyond recognition in his reply. I did not say that 40,000,000 people were all "united," or that these same people were attempting to "coerce" anyone. I made no statement of the numbers who voted at the General Election, but sought to contrast the small number of some 50,000 doctors with the huge figure of some 40,000,000 people who are the prospective patients of those 50,000 doctors under a Bill for a more modernized, a more humane, and a more democratic system of treatment.

The Government of this country, during its term of office, is always recognized as representative of the people, and it is against the endorsed scheme of this representative Government for better health conditions for the nation as a whole that certain doctors are urging sabotage. The main excuses brought forward for this sabotage are objections to the small measure of direction which the scheme urges for the benefit of those who are badly placed for medical treatment; objections to the stoppage of buying and selling of the treatment of patients *en bloc*; objections to whole-time salaried service which, they claim, interferes with a doctor's freedom; objections to the rapid and immediate efforts to open large numbers of health centres which would improve the working facilities for doctors and others and whose efficiency could be further increased as experience of their working was collated; objections to the taking over of voluntary hospitals (many of which are out of date and lack sufficient funds), which pick and choose their patients and contrive to get most of the limelight although the ratio of beds in voluntary hospitals to those in municipal hospitals is of the order of 1 to 5 in the whole of the country; and objections generally to the harnessing of the profession as a more closely working team for the benefit of the country as a whole. In other words, the objections of these saboteurs are mainly from the narrow professional viewpoint.

It is true that they also claim much virtue in their anxiety about that somewhat ill-defined condition which they term the doctor–patient relationship, but is not this a considerable slur on their numerous colleagues who are working in whole-time salaried jobs up and down the country? Have they ever considered the nurse–patient relationship? Are nurses any worse nurses because their salary—a scandalously low one—is paid to them by a hospital board or by a local authority instead of being collected on a capitation system? And is it not possible that our patients, who, by the way, did vote at the election, have a very shrewd idea of what would benefit their own "health and happiness"? They know their doctors—at any rate they know the general practitioners who form the majority in any national health scheme for doctors—and they do not appear as a class to be worried about this doctor–patient relationship.

Sir Ernest's own assertion that the "vast majority" of our doctors sincerely believe that acceptance of the Government's proposals will worsen, rather than better, the nation's health and happiness is an astounding piece of wishful thinking for which he forgets to offer any evidence. Where are his "authentic figures" for this grotesque statement? Can it be that he finds them in the B.M.A. questionary or from that majority of the group of doctors who also sit in the House of Commons and disagree with his opinions?

Lastly, he must surely agree that the Labour Government is the representative Government of this nation of 40,000,000. For otherwise it follows that he, who received only 7,618 votes out of an electorate of some 24,000 and won his seat by the narrow majority of 149, is not the representative Member for the University of London. Which is unthinkable.—I am, etc.,

London, N.3. P. G. S. DAVIS.

Paralytic Ileus

SIR,—If Mr. Rodney Smith (Feb. 16, p. 253) had read my letter (Feb. 2, p. 177) more carefully, he should have realized that I had no desire to belittle the value of "suction-drainage," my main wish being to point out its advantages—but also its limitations. The vast majority of surgeons in this country are "fully conscious" of the value of suction-drainage—and also of its shortcomings. While very many good things have had origin in America, and I would not for a moment belittle the tremendous advances achieved by so many of their pioneers in the field of surgery, we must not lose our sense of proportion or our critical faculty. This is a mechanical age and America is a highly mechanized country. We must beware of the tendency to mechanize our patients. Fortunately this "Brave New World" of "R.U.R." has not yet arrived! The best surgeon is not necessarily the one whose patients positively bristle with gadgets, nor do patients hemmed in by such a barrage of machines necessarily do best.

I am well aware of the value of suction-drainage in operations on the oesophagus or cardio-oesophageal areas, where leakage is so prone to occur after anastomosis of stomach or jejunum to oesophagus. Very many surgeons, myself included, invariably use suction-drainage with operations on the stomach, duodenum, or small intestine, to prevent gastric or duodenal dilatation. Its value in the treatment of penetrating wounds of the intestines is quite beyond question, due to the greatly increased but incalculable risk of intraperitoneal infection added to the other hazards. But when the fluid and/or flatus collect in and remain in the lower jejunum and ileum (as in true paralytic ileus) I do not believe that suction-drainage of the stomach, duodenum, or upper jejunum alone is the best form of treatment. In true paralytic ileus there is neither peristalsis to carry the tube down to the distended bowel nor reversed peristalsis to carry the fluid and/or flatus up to the tube. Otherwise ileostomy would not have failed so universally. Of course suction-drainage alone will succeed admirably with the lesser and more transient degrees of functional post-operative distension, or in cases of physical obstruction where there is active peristalsis. The distinction between slight transient distension and paralytic ileus is very difficult to define in the all-important early stages, for it seems to be mainly a matter of degree and duration. Absence of peristaltic sounds even for long periods is not enough. The normal abdomen is often quite silent for long intervals, as also is the distended abdomen, whether due to transient distension, paralytic ileus, or complete physical block. There will be noise only where there is movement, usually through a narrowed lumen as in partial physical obstruction.

I entirely agree with Mr. Rodney Smith that "the prevention of the vicious circle" is of paramount importance. Hence my advocacy of "eternal vigilance and prompt action" (Feb. 2, p. 177). But I am still firmly convinced that my scheme of active prevention is much more rapid and certain than suction-drainage alone. Perhaps I did not make it sufficiently clear that I always employ this latter method when there is any accessible fluid or flatus to be aspirated. But I have seen patients die from toxaemia because this method alone was persisted in, who could certainly have been saved by the early active treatment described. I stress the word "early," so as to avoid Mr. Smith's "vicious circle." But what evidence is there in favour of "a paresis of the intestinal muscle"? Could not the lesion be at the myoneural junction or in the parasympathetic system higher up? Might it not be due to deficient production of acetylcholine at parasympathetic nerve-endings, or its abnormal destruction by chlorinesterase? Or might it not be due to central overaction of the sympathetic system inhibiting the parasympathetic? The condition is as full of possibilities as the abdomen is of fluid or flatus! Again, how do we know that in true paralytic ileus the muscle will "resume its function when it has recovered its tone," and that "this recovery is best facilitated by resting the gut as much as possible"? I maintain that such masterly inactivity (as regards effectively dealing with the dilated ileum) merely favours the development of Mr. Smith's "vicious circle," as well as prolonging the toxaemia. I have found that early treatment with prostigmin may initiate peristalsis alone without the need for an enema. So there does not appear to be a "paresis of the intestinal muscle," unless and until late in the "vicious circle," when the intestine has become hugely dilated, anoxic and devitalized, and will never contract again. I have not seen any patient "made worse by such treatment," unless it had been left till too late, when he was already moribund.

I must thank Mr. Rodney Smith for correcting a rather loose and careless use of words on my part in referring to "gastric suction with a Miller-Abbott tube." In a spirit of grateful reciprocity might I point out a similar mental aberration on his part, when he states—"but the enormous volume of fluid withdrawn by suction does not mean any greater necessity for intravenous fluids, for stagnant fluid left in the dilated intestine is just as much lost from the general circulation as that withdrawn by suction." The "stagnant fluid" left in the dilated bowel, provided none of it has been taken by mouth, must all of necessity have been secreted by the bowel, and must cause a loss of fluid and chlorides from the body, whether these were sucked out of the bowel or not. Therefore they must be made good by intravenous saline. The daily urine output will indicate whether enough fluid is being administered intravenously. Estimation of urinary chlorides will indicate whether these are being replaced adequately. Chlorides will disappear early from urine unless adequately replaced intravenously. Urea will be retained in the

blood to an abnormally high level later on, to maintain a normal osmotic pressure, if the chloride and protein deficiency is allowed to progress. So it, too, will tend to disappear from the urine, but only when the plasma proteins have already fallen.

Mr. Smith calls neglect of physiological stimulation of the dilated bowel "physiological rest." Since the dilatation is due to some pathological cause I would suggest that physiological stimulation is the correct form of treatment. Can one call it "physiological rest" when the ileum and perhaps the lower jejunum are dilated, with toxic and "stagnant fluid left in"? As regards attempting "to coerce the gut into contracting while it is dilated and therefore at a great mechanical disadvantage," surely he has not forgotten that stretched muscle contracts more forcibly when stimulated than unstretched muscle, and the tone in muscle increases with stretching. That is, provided it has not been neglected too long by "physiological rest," thus entering the "vicious circle." "Eternal vigilance and prompt action are the answer."

With regard to Mr. Michael Harmer's painful experience with prostigmin (Feb. 16, p. 254) I would suggest that in his case it was not necessary. As he had such severe peristalsis after the prostigmin, he was suffering from post-operative distension due to some physical intestinal obstruction and not true paralytic ileus. As regards the "small faecal object" passed, as I have said before (Feb. 2, p. 177) the need for treatment should be gauged by the tension of the distended abdomen, and the "success of treatment is gauged not so much by the amount of faeces and flatus passed as by the increased softness of the abdomen afterwards."—I am, etc.,

Mount Vernon Hospital, Northwood. ALAN SHORTER.

Treatment of Chest Wounds in Forward Areas

SIR,—It was with interest that I read the article on the treatment of chest wounds in forward areas by Major W. Michie, Capt. H. W. C. Bailie, and Capt. J. Macpherson (March 30, p. 482). The impression is given that tension pneumothorax will be relieved by the introduction into the pleural cavity of a wide-bore needle with a one-way flow attachment. Admittedly this is sufficient treatment in most cases, but it does not always work. I remember seeing a man in an advanced surgical centre in Italy who was treated in this way. Air escaped continuously under high pressure from the affected side, but the displacement of the mediastinum continued, with all the associated symptoms, and he died. At necropsy a small shell splinter was found embedded in a wound on the costal surface of the lung; the bronchioles were laid open, and kept open, by the foreign body. The collapse of the lung had not closed the wound as expected.

Soon after this I encountered a similar case which showed no relief of symptoms by attempted reduction of the pressure in the chest. With the lesson of the previous case before me I opened the chest, and again found a small lung wound from which air was being discharged into the pleura—a piece of metal 1 cm. by 1/2 cm. lying there keeping it open. This was removed and the wound sutured, the patient making an uninterrupted recovery. It is apparent, therefore, that thoracotomy is indicated in any chest wound complicated by tension pneumothorax which does not respond rapidly to the recognized treatment.—I am, etc.,

Newcastle-upon-Tyne. JOHN SWINNEY.

Smallpox in the Vaccinated

SIR,—In your annotation on smallpox in the vaccinated (March 30) you quote the late Dr. T. F. Ricketts: "The common tendency is both to underestimate and to exaggerate the capacity of vaccination to protect against smallpox." As the proposal to repeal compulsory vaccination is now before Parliament and the country in the National Health Service Bill, the question of just what vaccination can or cannot do is of more than academic interest. May I therefore suggest that the tendency to underestimate referred to by Dr. Ricketts relates to the effect of vaccination in protecting the individual, while the tendency to exaggerate occurs in relation to the effect in protecting the community. In all the 34 years during which I was M.O.H. for Leicester I never had a single member of my staff in the health department, the ambulance service, or the smallpox hospital contract smallpox, the only precaution taken to secure this satisfactory result being to ensure that all were freshly vaccinated before going on smallpox duty. This proves what vaccination can do in protecting the individual.

But it is quite impracticable to protect a whole community in this way. Infant vaccination, as has been proved over and over again, will not do it, while repeated revaccination, even if it were desirable, could never be enforced. I will go further and say that infant vaccination which is not followed by revaccination may even be worse than useless, because, as you rightly point out, smallpox in persons "well" vaccinated many years before is often so highly modified that it is very easily overlooked, yet it may spread the disease broadcast in a highly virulent form.

For very many years infant vaccination in this country has been steadily declining, yet instead of the deaths from smallpox increasing they too have declined, until they are now almost negligible. After all, it is only the child population which is really protected by infant vaccination, and one of the lessons to be learnt from the experience of an unvaccinated town like Leicester is that, under modern conditions of combating the disease, smallpox is essentially a disease of adults.

The purport of this letter is to suggest that even though infant vaccination falls still more into disuse when compulsion is repealed—and personally I believe that it will do so—there is no serious reason to fear that smallpox mortality will increase.—I am, etc.,

C. KILLICK MILLARD,
Leicester. M.O.H. for Leicester, 1901-35.

"Cord Round the Neck"

SIR,—While I agree with Mr. Mortimer Reddington (Jan. 19, p. 109) that a cord around the neck of a foetus will never cause a stillbirth by compressing the trachea, yet I am not so sure that the progress of labour may not cause fatal compression of a cord which is wrapped round some part of the foetal anatomy.

Mr. Reddington makes the point that the uterus, placenta, and cord all descend *pari passu* with the presenting part of the foetus, so that the tension of the cord must remain constant throughout labour. Do they in fact do this? If a piece of elastic 6 in. (15 cm.) long, but stretched to 12 in. (30 cm.), is relaxed, one end being held in the same place, the loose end will move 6 in. (15 cm.) but the centre of the elastic only 3 in. (7.5 cm.). Similarly, if the fundus of the uterus were to move downwards the same distance as the presenting part, so too would the insertion of the cord only if the placenta were implanted on the fundus. If the insertion of the cord were halfway down the upper segment, then it would move only half the distance of the presenting part of the fundus. If it were somewhat tight at the beginning of labour it would be tighter still by the time the head had reached the perineum. If the cord were inserted battledore fashion at the lower edge of a placenta situated anywhere but on the fundus, then it would be further from the fundus and would descend proportionately less.

This is assuming that the fundus does, in fact, move downwards as the presenting part does, but it may not necessarily do so. The girth of the uterus is greater than the girth of the foetal head. As the head descends, the space which it leaves behind is at once filled up by liquor from above. The upper segment retracts this same volume, but the resulting decrease in the length and breadth of the uterus is very small: and, be it noted, it is the breadth as well as the length which decreases. To make the matter clearer: suppose a child's balloon were inflated and a piece of glass tubing 1/4 in. (0.63 cm.) wide and containing a piston inserted into the mouthpiece. The piston could be blown many inches along the tubing before the deflation of the balloon became noticeable. If the piston were attached by a piece of loose string to the interior of the balloon this string would soon become tight. This is, of course, greatly exaggerating the mechanism of the foetal expulsion, but the principle is the same so long as there is a fair amount of liquor.

Nor can one entirely neglect the movements of the shoulders. If the cord is entwined round one of them and tight at the beginning of labour rotation of the shoulder during labour may pull upon it and compress it. The movements of the shoulders, except those that occur after the birth of the head, are not given much

attention, but there can be little doubt that they often begin to rotate before this in occipito-posterior positions, since full "long restitution" through one and a half right-angles is so rarely seen. Quite a few degrees of rotation could cause a shoulder to move 1 in. (2.5 cm.) or 2 in. (5 cm.) or even more, and this could put considerable tension upon a cord already tight, quite apart from the other mechanism of descent mentioned above.

When these conditions obtain I believe a stillbirth may occur if the case is left too long "to Nature." When one would expect an easy delivery—the presentation, position, and contractions being good—and yet delivery is delayed, I believe one should suspect a tight cord. If the foetal heart becomes slow then forceps should be applied at once. I suggest that Mr. Reddington has not seen a stillbirth from "cord round the neck" because he is a careful obstetrician. If stillbirths do occur from this cause, perhaps they should be attributed to the neglectful midwifery which allowed a slowing foetal heart to pass unnoticed. In this sense the explanation of "cord round the neck" must be regarded with doubt. Since there is but little descent of the head before the os is fully dilated, after which the forceps may be used at any time (provided the head has entered the pelvis: and it will not have descended far if it is still floating), a timely forceps delivery should almost always save the baby. May I add that I doubt if the necessity arises often.

While on the subject of stillbirths resulting from accidents to the cord, I remember a young primigravida whose labour was progressing splendidly. Quite suddenly the foetal heart fell almost to 100 and became irregular. I at once applied forceps, and in adjusting the right blade distinctly felt the cord at the side of the head, but not prolapsed in advance of it. I have no doubt that it was being pressed between the head and the birth canal with each contraction. The child was not stillborn, but would have been, I am sure, if it had been "left to Nature." In this case the cord was not round the neck, and a stillbirth, had it occurred, would have been difficult to explain.

May I suggest, therefore, that while "cord round the neck" may rarely be an excuse for a stillbirth, yet it may nevertheless cause a stillbirth sometimes and should not be dismissed from our calculations. If it should be so dismissed, then that may encourage the less careful to neglect to listen to the foetal heart as often as they should towards the end of labour.—I am, etc.,

G. BENION THOMAS,
Professor of Midwifery, Madras Medical College.

Ocular Signs in the Prisoner of War from the Far East

SIR,—May I, as an ex-P.O.W. who had some experience of ocular defects among my fellow-prisoners in Hong Kong, make a few comments upon recent correspondence? Unfortunately I am not in a position to give statistics, but perhaps some general observations may be of interest.

The ocular signs for the most part corresponded to the description given by Spillane and Scott in the *Lancet* of Sept. 1, 1945 (p. 261), except that in addition we also saw a considerable number of conjunctival and corneal conditions, the latter varying from what appeared to be a mild epithelial dystrophy to ulceration (no slit-lamp observations were possible). These latter appeared to respond to cod-liver oil or vitamin A preparations.

A large proportion of men developed bilateral central scotomata with visual acuity ranging from less than 6/60 to almost standard vision. The field defects were central, and did not closely resemble those of tobacco amblyopia in shape or nuclei, but were for the most part roughly circular. The severer ones might show a central nucleus for a 10-mm. white object at 1 m. extending to 2 or 3 degrees from the fixation point, with roughly concentric zones for 5-mm. and 1-mm. white objects, or there might be no field for 1 mm. In others the defect might be only a relative one for red, and during the course of recovery in those who were fortunate a scotoma for white would regress to a relative scotoma for red. I personally was never able to follow a case to complete recovery, though I observed several who recovered 6/6 vision and were unaware of any defect.

My observations were made at 1 m. on a Bjerrum screen and not a perimeter. Only a few of the severer cases showed some peripheral contraction by the confrontation test. Those with dense scotomata frequently showed a concentric depression of the 1-mm. isopter to within the blind spot, and in some cases the 5-mm. isopter was demonstrably depressed. The blind spot was usually enlarged, but the difficulties of accurate fixation may have accounted for this in some cases.

Pallor of the disk, usually only temporal, and always diagnosed with caution, manifested itself in a considerable proportion of those whose defect persisted for more than a few months, but, as Spillane and Scott found, the relation between the pallor and the severity of the defect was inconstant. Pallor of the whole disk sometimes occurred, and in these the visual defect was grave, and probably permanent.

Macular changes were not uncommon, and usually took the form of minute pigmentary disturbances with or without small whitish dots, reminiscent of senile macular degeneration. I was unable to convince myself that there was any necessary relation between these appearances and the degree of central defect, as identical field defects were found in their absence.

The ocular condition was in most cases, as Dr. H. G. Garland observes (Jan. 26, p. 143), part of a neuropathic syndrome, which included in most cases varying degrees of spinal cord dysfunction, the worst cases being helpless and bed-ridden, and labelled subacute combined degeneration. A colleague in another camp reported a case which had all the appearance of a bulbar paralysis. He made an astonishing recovery, but I believe had a residual ocular defect. Nerve deafness occurred in a few, and I saw two cases of paresis of the vocal cords. Mental deterioration occurred in some, but may have had other causes than malnutrition.

The account given by Spillane and Scott of a similar syndrome in P.O.W.s in the Middle East is in many features applicable to our experience. We saw a similar neuropathy, but extremely painful feet were usually a prominent feature at some stage, and, as one would expect, universal and often extreme loss of weight. There were the same bizarre alterations of sensibility of the lower limbs, but frequently also in the trunk, upper limbs, and head and neck. There were commonly alternating zones of hyperaesthesia and anaesthesia of the chest and abdomen, associated with subjective sensations of constriction of the chest and abdomen, with difficulty of breathing and dysphagia. There was usually a sensation of numbness round the mouth, and frequently loss of anal sensation. The nervous control of the bladder reflexes was sometimes disturbed, leading to frequency of micturition or difficulty in starting the stream.

Ocular signs were not always present in these neuropathies, and conversely they sometimes were present without the remainder of the syndrome, but the association of the ocular and other nervous lesions was so frequent that it would seem unnecessary to multiply entities to account for them all. Furthermore, hypochlorhydria was clinically present in a large number, as shown by varying degrees of dyspepsia, flatulent distension, anorexia, and diarrhoea, responding to the administration of HCl when available. Anaemia was common, but facilities for blood examination were not generally available. It usually appeared to be of the hypochromic variety.

The frequent association of retrobulbar neuritis with hypochlorhydria, anaemia, and cord lesions, and the very high proportion whose neuropathy was preceded by diarrhoea or dysentery, perhaps suggests that the analogy to be drawn, at any rate in the Hong Kong cases, is not so much with the toxic amblyopias, as Capt. W. M. Rich (March 2, p. 330) would urge in his comments upon the extremely interesting paper contributed by Major G. C. Dansey-Browning and himself (Jan. 5, p. 20), as with a wider group including the sprues, anaemias, and subacute combined degeneration. I am not qualified to discuss the parts played by intrinsic and extrinsic factors, and I find the current textbook accounts of beriberi, pellagra, and central neuritis confuse my attempts to classify the condition under discussion, which does not appear susceptible of being neatly docketed under any of these labels. Elliot's *Tropical Ophthalmology*, like other pre-war writings, is also inadequate. One finally resorted to the non-committal term "avitaminosis." Capt. Rich refers to the "irreversible optic atrophy," but our experiences in Hong Kong indicated that there is an earlier stage when the optic nerve lesion and the other central lesions are to a greater or lesser degree reversible under slightly more favourable nutritional conditions.

We were not in a position to carry out any scientifically controlled experiments in treatment, but gave whatever vitamin preparations could be obtained or improvised, along with such extra protein and fat-containing foods as we were able to obtain by purchase, or to a greater extent by gifts from the local International Red Cross organization. The results so far as vision was concerned were frequently disappointing, though the earlier or less severe cases often benefited remarkably. Any attempts to evaluate different courses of vitamin therapy were inconclusive. Dr. Goldsmith's remarks are of interest in this connexion, as many of our patients declared that a course of eggs did their eyesight more good than anything else. One certainly felt that an egg contained something more valuable than any vitamin capsule. The Japanese ration was seriously deficient in protein. There was much confusion as to the cause of the oedema which was so common, but there is little doubt in my mind that what was frequently described as wet beriberi was hypoproteinaemic oedema. There was no apparent relation between the incidence of oedema and visual defects. The rice was often in poor condition and possibly

toxic. The absence of trachoma, where the disease is normally endemic, was also notable amongst the P.O.W. in Hong Kong.

In conclusion I should like to express the gratitude and admiration we all felt for the tireless work and self-sacrifice of all those voluntary workers among the non-interned residents of the colony who, often at great personal risk, and at the expense of their own health and treasure, obtained for us those extra supplies which were undoubtedly the means of saving many lives, and to whom many of us are to-day indebted for our health.—I am, etc.,

Leicester. JOHN DURRAN.

Penicillin Treatment of Malignant Diphtheria

SIR,—I was interested to see the memorandum with this heading by Drs. A. B. Christie and J. C. Preston (March 23, p. 433). The aim in treating diphtheria with penicillin is to obtain: (1) a sufficient concentration in the blood; (2) a sufficient concentration in the saliva. The first is simple, the second requires a larger dose. In my opinion the dose should not be less than 500,000 units a day. This is sufficient to remove all penicillin-sensitive organisms from the mouth.

I have not seen enough cases to be dogmatic, but in the worst case that I have seen in my clinical experience and the worst case the medical officer of a fever hospital had seen, I gave a million units in the day. In all our opinions the prognosis appeared to be hopeless: a bull neck, an active spreading membrane in spite of antitoxin in adequate dosage (80,000 units intravenously), an ashy-grey patient in collapse, a very rapid onset with a rapid worsening of the condition. The organism was *C. diphtheriae gravis*. The response to treatment was dramatic, the membrane was coughed off intact in twelve hours, and the organism has not been grown since treatment was started. The child made a full recovery. Incidentally, the same dosage—500,000 units a day—seems to act equally dramatically in the few cases of scarlet fever that I have treated in this way, these cases being of the very severe anginose type seen in adults. In all cases treatment was stopped after three days. —I am, etc.,

St. Albans. DAVID A. LONG, Penicillin Officer, Hill End Hospital.

Tuberculin Therapy

SIR,—I should like to support Dr. John R. Gillespie's plea (March 30, p. 501) that there should be a fresh inquiry into this subject; the time for hammering out the truth is most fitting, now that its vigorous upholder has gone. Is tuberculin a unique prophylactic or invariably fraught with danger to the recipient? We, too, think that it has fallen into disrepute through no fault of its own. Now, administered according to Dr. Camac Wilkinson's method, it can do no harm, and it may do very much good in early uncomplicated cases of pulmonary tuberculosis. Started on infinitesimal doses of P.T.O. (*Perlsucht Tuberculin Original*) (bovine) the patient's response one way or the other soon becomes apparent; and, of course, on this depends the continuing or withholding of the treatment. Our working hypothesis may be simply stated thus. The aim is to desensitize the patient's tissues to the strong bacillary toxins which are forming tubercles in his lungs, this process being: mitosis of the connective-tissue cells, giant-cell formation, and subsequent devascularization of the whole tuberculous nodule. Bearing in mind, then, that the growth of the tubercle is essentially toxin-caused, we inoculate tuberculin into a healthy tissue with the express purpose of forming an antitoxin with which to neutralize the toxin of the bacilli, and thus to rob them of their only weapon. When thus safeguarded, the tissues in the front line are enabled to put up a fight, and separate themselves from the necrosed tissue. The zoned-off granulomatous material then further breaks down, and is coughed up as phlegm through the bronchioles, which act as natural drainage tubes. The rest of the treatment continues as a slow siege, until the desired cicatrization is reached.

That the administered heterotoxin may not exactly correspond to the autotoxin matters less than might be supposed. The danger is when the autotoxin becomes mingled with the toxins of pyogenic and other organisms. Unless these can be eliminated, it is useless and harmful to go on with the tuberculin. A question once frequently heard was, "Cannot an equally good result follow after absorptions of autogenous tuberculin, more or less induced by graduated exercises?" The answer is that we have no control over the quality or quantity of this toxin, and indeed are in the dark as to whether it is functioning at all. Moreover, antitoxin formed from healthy cells has more to recommend it than that produced at a diseased focus.

We sum up by saying that tuberculin is primarily indicated in early cases of phthisis, uncomplicated by haemoptysis or marked pyrexia; and that it acts as a prophylactic by taking antitoxin-toll of the body cells, and thus follows the general law of immunization. The doses must be checked throughout by records of pulse, temperature, and weight; and, cautiously increased, both local and focal reactions can be kept at a safe minimum.

The danger of giving too heavy a dose of tuberculin, which disastrously paralyses the immunizing agents of the body, must be attributed to carelessness rather than to faults of method. It was Koch's unfortunate early mistakes in this respect that dealt tuberculin therapy a knock-out blow, from which it seems never to have recovered.

The tuberculin course is, of necessity, lengthy, even with twice-weekly inoculations and things being at their best. The technique is sufficiently full of difficulties as to necessitate an initial course of instruction to those who wish to take it up. Above all, it must be remembered that everything depends upon the skill and judgment of the administrator.—I am, etc.,

Oxford. HERBERT C. MANNING.

SIR,—Dr. John R. Gillespie's letter on tuberculin therapy recalls the notable work of the late Dr. Camac Wilkinson. He achieved a great deal, and, I think, narrowly missed achieving a great deal more. To observers at his clinic one fact stuck out a mile. The patients insisted on the tonic effect of some of the doses. This raises the crucial point of the treatment dose of vaccine, which has never been appreciated at its proper worth. Vaccine is so firmly associated in the minds of most doctors with prophylaxis that it has proved a curse when treatment is the object, not prophylaxis. A correct treatment dose is as remarkable in its effect, and often as rapid, as is that of opium, digitalis, or other potent drug. Who in his senses would go on increasing the dose of a powerful drug when it is acting satisfactorily? Yet how often do we get instructions to do so when vaccine is being used? A dose of vaccine, if in any way effective, produces either a reaction, which is not the object, or a beneficent response, and this latter effect is what one aims at. Dr. Gillespie has no easy task ahead, but he has my sincerest wishes for success.—I am, etc.,

Crowborough. G. L. BUNTING.

B.C.G. Vaccination

SIR,—In his communication (March 30, p. 501) Dr. Claude Lillingston wonders "if we have been caught napping" with regard to B.C.G. It would not be fair to say that, though we have been slow to appreciate the use which has been made of it in other countries. However, in November, 1943, as a result of a meeting of the Tuberculosis Association, at which physicians from Norway, Canada, and the U.S.A. spoke, a joint committee consisting of representatives from the Joint Tuberculosis Council, the Tuberculosis Association, and the National Association for the Prevention of Tuberculosis was set up to investigate the position. While the war lasted there did not seem any possibility of trying out B.C.G. here, but in the near future action will be taken to put the case for its trial before those in authority and before the medical public.—I am, etc.,

The Tuberculosis Association, 26, Portland Place, London, W.1. J. V. HURFORD.

SIR,—Dr. Claude Lillingston in his letter on B.C.G. vaccination (March 30, p. 501) asks whether we have an "intelligent Intelligence Service" to keep us from being "caught napping" by medical advances in other countries. In your answer you refer him to your leading article of Dec. 4, 1943. You are too modest. Dr. Lillingston quotes an eminent Scandinavian authority as saying: "The stage at which one discussed the risks of B.C.G. having been passed, the questions now remaining to be asked are: whom to vaccinate, and how long does the immunity conferred by B.C.G. last?" This was on Jan. 18

of this year. On Oct. 7, 1934, in a review of my book on B.C.G., in which I advocated it as safe and successful, you said: "These views are very similar to those which have been advanced in the editorial columns of the *B.M.J.* during the past few years, and are likely to meet with a considerable measure of approval. The real crux of the matter is how great and how lasting is the degree of immunity produced."

I think Dr. Lillingston's fears are justified; we *have* been caught napping in this country—but not through any fault of yours, Mr. Editor, or mine.—I am, etc.,

Henley-on-Thames. K. NEVILLE IRVINE.

Temperature in Pulmonary Tuberculosis

SIR,—There have been a number of articles in the *Journal* about the temperature in pulmonary tuberculosis, especially in connexion with the menstrual cycle: Feb. 9 (p. 209), March 2 (p. 334), and April 6 (p. 523). In the *Journal* of Dec. 29, 1928 (p. 1173), I wrote on "The Temperature in Pulmonary Tuberculosis."

The oral method is the most suitable for taking the temperature, but the patient must keep his or her mouth shut for fifteen minutes, and the thermometer should be kept in for five minutes for accuracy. I noted the following points. (1) There was a definite premenstrual rise in temperature, the average duration of which was five to six days. The long premenstrual rise is present in only 34% of positive cases, but in 52% of negative cases. Two healthy nurses took their own temperatures at my request, and in both cases there was a premenstrual rise. This seems to show that it is not diagnostic of tuberculosis. In fact, if only one record of temperature is taken, it must be considered in relation to the menstrual cycle. (2) I also noted that in 90.1% of males the difference between morning and evening temperatures was more than 1° F. 0.56° C.), and in 56.7% of females less than 1° F.—I am, etc.,

Dorridge, Birmingham. COLIN MILNE.

Stethoscope versus X Rays

SIR,—Dr. J. Frankland West (Feb. 2, p. 182) describes a case in which the radiological diagnosis was that of a resolving lobar pneumonia, though the patient actually was suffering from pulmonary tuberculosis. From this case Dr. West concludes that a vote of "no confidence" with regard to mass miniature radiography is justifiable, and also that the *x*-ray film is inferior to the stethoscope in the diagnosis of early tuberculosis. Frankly I fail to see how a medical man with years of training behind him can arrive at such a conclusion on the scanty and feeble evidence put forward.

The clinician who relies on others for his *x*-ray interpretations is apt to forget that we can ask an *x*-ray film—and particularly one of the chest—just so much and no more. He feels that in order for such a film to be of any use it must supply an exact answer to the question, "From what disease is this patient suffering?" This belief is often fostered by the unwary radiologist who is tempted to read his films in terms of "bacteriology" instead of "pathology."

The *x*-ray film is a shadow picture of a disease process in an anatomic structure, and often cannot, and should not, be interpreted in the light of the causative organism. Yet this apparently is what Dr. West feels that it should be capable of doing before he is willing to grant it its rightful place in chest diagnosis. He is asking too much of his chest films, and because on occasions he gets the wrong answer he is ready to condemn the most useful diagnostic means at our disposal. Would Dr. West drive a screw with a hammer? And if he did try to do so without success would be then condemn the hammer as a useless tool? Would he condemn the microscope because it failed to tell him the difference between a tubercle bacillus and, say, a leprosy bacillus?

Nevertheless he attempts to belittle the value of the *x*-ray film when he once fails to get from it a differentiation between a tuberculous pneumonia and a resolving lobar penumonia, two conditions which may very strongly resemble one another. Any man with experience of chest radiology will admit that such differentiation is often quite impossible, and in Dr. West's case I have no doubt at all that the fault lay, not in the *x*-ray film, but in too great a readiness on the part of the radiologist to give a definite diagnosis on insufficient evidence. Those of us who give our whole time to chest work are constantly running across difficulties in accurate diagnosis on the basis of the *x*-ray film alone. A lung abscess may look exactly like a tuberculous cavity, while malignant glands in the mediastinum may be indistinguishable from the glandular involvement due to primary infection tuberculosis.

Nevertheless the *x*-ray film may be relied upon to reveal with accuracy pathological changes in the chest, even though on some occasions it gives no clue to the aetiology of the condition encountered. As a clinician who for the last fifteen years has been listening to patients' chests first and examining their *x*-ray films afterwards, I have no hesitation in saying that the skiagram will reveal many more early lesions than my stethoscope will bring to light. I use the word "lesions" advisedly, however, as in a number of cases it is impossible to be sure of the actual condition present without further laboratory and clinical examinations, and often another *x*-ray examination.

Dr. West has missed the point entirely when he expects a cut-and-dried diagnosis always to stare at him as soon as he opens the radiologist's report. Surely he would not ask for a vote of "no confidence" in his car when it failed to negotiate a three-foot depth of water. Yet this is exactly what he is doing when he asks an *x*-ray film too much and occasionally gets a wrong answer.—I am, etc.,

King George V Jubilee Memorial Sanatorium, Jamaica. RICHARD A. S. CORY, Senior Medical Officer.

SIR,—I hasten to explain that the membership of my "fifth-rate provincial soccer club" (March 16, p. 410) was strictly limited to the clinical methods of investigation which were enumerated in the preceding paragraph. Persons—living, dead, or fictitious—were neither admitted nor included. I hardly thought that this explanation would be necessary, but Dr. Weatherhead's letter (March 30, p. 504) shows that one can never be too careful when using a comparison.

Dr. Weatherhead's statement that I am a "comparatively recent" recruit to the tuberculosis service is not only comparatively but absolutely untrue. If ten years—three and a half of which were spent in full-time hospital appointments (two years in a teaching hospital) and six and a half years in busy tuberculosis clinics—come under the heading of "comparatively recent" then I must admit that my English is considerably worse than Dr. Weatherhead thinks.—I am, etc.,

Woodford Green, Essex. F. KELLERMANN.

Words and Clear Thinking

SIR,—I read with considerable interest Dr. T. C. Beard's letter (March 16, p. 404). It seems to me that medicine is honeycombed with etymological inconsistencies, in many cases the same word showing a Greek prefix and a Latin suffix, such as that dreadful word "dysfunction." Surely it would be better to show lingual continuity by referring to a "malfunction" or "dyscrasia."

It would be useful if some efforts were made to standardize medical language. Two glaring examples of mental confusion are presented in the numerous alternative names for the barbiturate drugs and in the various pathological subdivisions of the nephritic lesion such as "acute diffuse glomerulo-tubular nephritis." As I once heard a learned physician say, "Azotaemic and hydraemic nephritis are good enough for me." Again, why in eliciting signs in the chest should it be said that "vocal fremitus" is increased or diminished, thus using an English and a Latin word in the same phrase? Or is it really to one's advantage to know that splenomedullary leukaemia is synonymous with myelocytic leukaemia? I well recall on a ward-round my chief reading out to us clerks the registrar's impressive differential blood count in which well over a dozen different types of cell were claimed to have been seen under the microscope. Among them was a group classed as "dictocyte." My chief, himself a blood expert, said blandly to us: "Dictocytes! What are they? Do they talk to you?" There is a tendency also to fix the incorrect proper name to certain things. In descriptions of lymphadenoma the giant cells are labelled Dorothy Reed or Sternberg cells, whereas they were first described by Sir Frederick Andrewes of Bart's and should be Andrewes cells. To give another example, Graves's disease was

first described by C. H. Parry, a West Country physician of repute.

Basic English has a lesson to teach us, I feel sure, in helping one to express oneself in a simple manner. Muddled thought leads to muddled action and has been responsible for not a little of the present international unrest, and for vague terminology in so many official documents, such as White Papers, that one meets nowadays. If everyone "called a spade a spade" the affairs of nations would soon sort themselves out in a reasonable manner.—I am, etc.,

J. B. GURNEY SMITH,
Surg. Lieut., R.N.V.R.

Donibristle, Dunfermline.

Obituary

CHALMERS WATSON, M.D., F.R.C.P.ED.

We regret to announce the death on April 6 at Fenton Barns, Drem, East Lothian, of Dr. Chalmers Watson, consulting physician to the Edinburgh Royal Infirmary, who had been well known for his work on nutrition and in later years devoted himself to rearing cattle for production of pure and safe milk.

Douglas Chalmers Watson, son of Walter Watson, M.D., of Midcalder, was born in 1870 and was educated at George Watson's College and at Edinburgh University, where he won the Wightman prize in clinical medicine on graduating M.B., C.M. in 1892. After serving as house-physician at the Royal Infirmary and at the Royal Hospital for Sick Children he was elected F.R.C.P.Ed. in 1901 and proceeded to the M.D. in 1904. For a time he worked on nutritional problems in Sir Edward Sharpey-Schafer's laboratory, and for this research he was awarded the Alvarenga prize by the College of Physicians of Philadelphia. After his election to the visiting staff of the Edinburgh Royal Infirmary Chalmers Watson was active in promoting scientific methods in hospital practice; he exercised much influence upon students as a clinical teacher and became senior lecturer in clinical medicine in the university. He joined the B.M.A. in 1897 and was secretary of the Section of Pharmacology and Therapeutics at the Annual Meeting held in London in 1910. He was the original editor of the *Encyclopaedia Medica* published in fourteen volumes at the beginning of this century, of which a second edition appeared in 1915–25. His numerous published writings included *Food and Feeding in Health and Disease*, which reached a second edition in 1913, and a small volume, *Lectures on Medicine*, a handbook for nurses; also *The Book of Diet*. A clear and fluent writer, he was a strong advocate of reform in medical education and keenly interested in student activities, both athletic and social. At the Edinburgh University Rectorial Election in 1935 he ran Lord Allenby close.

His first wife, Alexandra Mary Geddes, C.B.E., M.D., sister of Lord Geddes, took a prominent part in Scottish public life and shared many of his tastes and activities. She had been physician to the Edinburgh Hospital for Women and Children, chief controller of the Women's Army Auxiliary Corps, and president of the Medical Women's Federation. She died in 1936, and he married secondly Miss Lily Brayton, widow of Oscar Asche.

The following passages are quoted from a tribute paid to Dr. Chalmers Watson by a colleague writing in the *Scotsman*:

His originality of thought and dynamic spirit early created an impulse towards research. As a physician associated with the Royal Infirmary of Edinburgh throughout his active medical career he was a clinician of outstanding ability. He was equally loved for his humanity and respected for his sincerity and integrity of purpose. He inspired succeeding generations of students by his enthusiasm, his clarity of exposition, and his originality of thought. He had deep insight into human nature and an unusual capacity for imparting it to others. To his clinical work in hospital he brought his earlier scientific training and was responsible for founding the clinical laboratory of the Infirmary. In the sphere of social medicine his interest was equally wide and the effect of his endeavours equally impressive. Perceiving the lack of suitable institutional facilities for the treatment of those of moderate means he obtained the charter for the foundation of the Queen Mary Nursing Home in Edinburgh and led the way to numerous similar developments elsewhere. Faithful to his early instinct in nutrition as a basis of good health he was not only an ardent advocate of healthy food production, but, in later years, took a practical lead in dairy farming.

Dr. WILLIAM HERBERT SMAILES, who died on March 24 in the Brotherton Wing of the Leeds General Infirmary, was for many years an active worker in the British Medical Association. He had been chairman of the Huddersfield Division and president of the Yorkshire Branch; he served a year on the Central Council and nineteen years on the Insurance Acts Committee, and represented his Division at thirteen Annual Meetings of the Association. Born at Honley, near Huddersfield, on July 6, 1881, son of Thomas Smailes, M.D., he was educated at the Leys School, Cambridge, and at Manchester and Leeds Universities. He graduated M.B., Ch.B. of Leeds, and M.B., B.S. of London University in 1905, took the M.D.Lond. in 1910, and the D.P.H. of Sheffield in 1912. Dr. Smailes had been in practice at Honley for forty years. He was medical officer at the Deanhouse Institution, held many public appointments, and was for some time honorary pathologist at the Huddersfield Royal Infirmary. During part of the war of 1914–18 he worked as assistant surgeon at the Huddersfield War Hospital with the rank of captain, R.A.M.C.(T). He was a past president of the Huddersfield Medical Society and honorary secretary of the Panel Committee. Apart from his medical work, Dr. Smailes had many other activities. He was a J.P. for the West Riding of Yorkshire, a member (ex-chairman) of the Holmfirth Council, chairman of governors of the Holme Valley Grammar School, and a prominent Freemason. H. F. H. writes: His passing has removed from this district an outstanding figure. After nearly seven years of close association with him on the National Service Board at Huddersfield, I can, with knowledge, pay tribute to his worth. He was a fine clinician, of mature and balanced judgment, a most careful and courteous examiner, and a delightful colleague. No matter how busy he might be in his practice, he was invariably punctual in his attendances at the Medical Board, his work was never hurried, and he never lost his serenity. Always ready to help his colleagues, he had a smile and pleasant word for everyone, and was loved by us all. It is not to be wondered that his patients were devoted to him, his life being spent in their service. He was an example of the ideal family doctor, and his passing has left a void which it will be difficult to fill. To his widow and family we extend our deepest sympathy.

Dr. DUGALD CAMPBELL ORR, *M.C.*, who died in hospital at East Kilbride on March 25, graduated M.B., Ch.B. at Glasgow University in 1926. A. B. S. writes: On learning of the death of Dr. Dugald Orr I felt keenly the loss of a great friend and a great physician. My association with him extended over a short nine months, when as a very green house-physician it was my happy lot to be under his masterly guidance. His knowledge of the management and treatment of pulmonary tuberculosis had an uncanny completeness and breadth. But his real mastery lay in his deep sympathy with and understanding of an afflicted human being rather than an afflicted lung. It was this ability to understand and analyse human reactions that made him a great physician. Despite an incapacitating illness he struggled on heroically—his first concern always being the care of his patients. Not only the medical world but also all those privileged to fall under his care will mourn the passing of this beloved physician.

Dr. LEWIS TURNER LANCASTER, of Clitheroe, Lancs, died on March 26 at his home, after a short illness, at the age of 80. He graduated M.B., C.M. at Edinburgh in 1890, and succeeded his father in 1893 in an extensive and scattered country practice in the Clitheroe district. He was in active practice for 40 years: 20 years with horses over long distances, and 20 years with motor cars doing N.H.I. work. He referred to the first 20 years as the good years, the harder years, when work was difficult, responsibilities heavy, hospital facilities scanty—the years when services were appreciated. He found it hard to adjust himself to the psychology of the N.H.I. patients who crowded his surgeries and wasted his time. He was a man of strong individual character, of artistic tastes, loyal, sincere, kind and genial, but hostile and impatient in the presence of humbug. In the pleasant atmosphere of his own home, with his wife and daughter, there was a cordial welcome to all friends who came to see him. He was well known to the older practitioners of N.E. Lancs and to a wide circle of friends in this district. He was a member of the B.M.A. for the last 50 years. The writer has worked with him as an assistant, as a partner, and succeeded him in his practice 15 years ago. Throughout these years he remained the same staunch friend and counsellor, sound and solid and true—qualities which his colleagues in practice respected throughout his active career. He loved a joke and could pass one on with relish. His reminiscences of his early days in practice were highly entertaining. He has gone from among us, but the memories of a vivid personality remain.—J. M.

Dr. GEORGE GUNN, of Neston, Cheshire, died on April 3 at Crowborough, Sussex. He was born in Melbourne in 1879, and from the Church of England grammar school in that city came to this country to study medicine. He graduated M.B., Ch.B. of Edinburgh University in 1905, and in 1908 proceeded M.D. and took the F.R.C.S.Ed. diploma. By that time he had held house appointments at the Edinburgh Royal Infirmary, at the Royal Southern Hospital, Liverpool, and at the Royal Edinburgh Children's Hospital. Before settling in practice at Neston he served as resident medical officer at the Kasr-el-Ainy Hospital at Cairo. During the war of 1914–18 he was medical officer to the Red Cross Hospitals at Thingwall Hall, Parkgate, and Neston, and later M.O. to the local war memorial cottage hospital; he was awarded the M.B.E. in 1920. Dr. Gunn had a particular interest in paediatrics and was for some years physician to the Heswall Branch of the Royal Liverpool Children's Hospital. He joined the B.M.A. in 1911, and became chairman of the Birkenhead Division in 1922.

The Rev. SANDFORD SCOBELL LESSEY, M.D., rector of Grafton Underwood, Kettering, who died on April 3, spent a large part of his life as both physician and clergyman. He was born in London on Feb. 21, 1859, son of Theophilus Lessey, and studied medicine at St. Thomas's Hospital, qualifying in 1882. For seven years he was a member of the staff of the Miller Hospital and Royal Kent Dispensary and surgeon to the New Cross and Deptford Provident Dispensary. In 1896 he entered a theological college, and in 1899, the year in which he took the M.D. degree of Durham University, became curate of Newport, Isle of Wight. From 1902 to 1912 he was vicar of Hythe, near Southampton, and then for four years chaplain-superintendent, under the Church of England Temperance Society, of the Temple Memorial Home for Male Inebriates at Cinderford. During the war of 1914–18 he took charge of several medical practices so that doctors could join up, and he afterwards practised at Birmingham. In 1935 he accepted the living of Grafton Underwood, a tiny parish in Northamptonshire with a population of 200, which had had no rector for seven years because the stipend was too small for anyone but a man with independent means to accept the office. The money Dr. Lessey received for the sale of his practice or saved during his lifetime enabled him to take the living, to which he was inducted by the Bishop of Peterborough on April 30 of that year. He had joined the B.M.A. in 1894.

Dr. EDWARD HENRY EZARD, who died at Farnham, Surrey, was born at Bath on Aug. 15, 1864, son of Henry Ezard; he was educated at Grosvenor School, Bath, at Bristol, and the University of Edinburgh, where, after graduating M.B., C.M., and B.Sc., he was demonstrator of physiology for a year, and then for two years assistant physician to the Royal Edinburgh Asylum. He received the D.Sc. degree in Public Health in 1893. Later he went to Cambridge, took the M.A., and became director of medical studies at FitzWilliam Hall. Before his retirement from active work Dr. Ezard held honorary ophthalmic appointments in and around Cambridge, and during part of the war of 1914–18 served as civilian eye surgeon at the 1st Eastern General Hospital. He joined the B.M.A. in 1888, was a Fellow of the Royal Historical Society, and a past president of the Royal Medical Society of Edinburgh.

The death of the Rev. JAMES KITCHIN, L.R.C.P.&S., breaks a link with the older generation of medical missionaries in India. After spending some years in practice at Leven, Fife, Dr. Kitchin was able to fulfil a long-cherished hope when, in 1905, he was appointed by the former United Free Church of Scotland to the Mission to the Santals, an aboriginal tribe inhabiting the uplands of Chota Nagpur in Bihar. There he had as one of his colleagues Dr. J. M. Macphail, who was then building up a wide reputation as an ophthalmic surgeon in that part of India. Kitchin soon felt the urge to break new ground, and eventually he established a hospital at Tisri, where he spent over 25 years of service. He was a man who in a singular degree combined with his medical skill a deep and sincere piety and an unfailing compassion for the sick folk who filled his hospital—qualities that had their roots in a simple Christian faith. His courtesy, too, was unfailing. In addition to his medical work he did much to advance the cause of primary education among the Santals, and often, after a long day in hospital, he would go out to visit one or other of the night-schools which he had established in neighbouring villages. He spent himself unsparingly in the service of the people, who learned to trust him not only as a doctor but as a counsellor and helper in any of the manifold troubles which are the lot of the poor all over India. He was nobly assisted by his wife, who shared his constant devotion to the work of the Mission. He retired in 1935, and after Mrs. Kitchin's death three years ago he had been in failing health. James Kitchin was truly in the succession of the holy and humble in heart whose lives have refreshed the earth. He lives in the memory of many simple folk who counted him their friend and in the affectionate regard of his colleagues in the Mission.—W. D.

The work and influence of J. D. ROLLESTON, writes Dr. A. P. Cawadias, were much more important than they appeared. Like his brother, he took the broad humanistic view of medicine. He was not only a medical historian but also a physician of wide culture who wanted to infuse medical practice with the high intellectual background of the Renaissance physicians. It was because he proceeded from such depths that he showed such manifold interests. But his epidemiological, his paediatric, and his social medical work were united by a common humanistic basic conception. Undoubtedly his influence has been great in fostering this conception so necessary in times when politics, the pressure of material interests, and the mechanization of life threaten to undermine this intellectual basis without which we shall degenerate into blind craftsmen. Those who, like myself, were intimately associated with J. D. Rolleston can testify to his high aims, to his tenacity and courage. He had not, however, the reputation he merited, for he lacked the self-confidence and the external strength to "blow his own trumpet." And he was handicapped also by the gigantic figure of him whom he called "my famous brother." I have been honoured with the friendship of both the Rollestons for more than twenty years, and I believe that the only difference between them was one of personality. Both, however, should be united in the history of British medicine as torchbearers of the humanistic tradition.

The Services

Capt. V. S. Joshi, I.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in the Far East.

Col. J. T. Simson, late R.A.M.C., has been mentioned in dispatches in recognition of gallant and distinguished services in the defence of Hong Kong in 1941.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in North-West Europe:

Cols. W. D. Anderton, M.C., C. D. M. Buckley, M.C., and J. W. C. Stubbs, D.S.O., M.C., late R.A.M.C. Brig. (Temp.) H. L. G. Hughes, C.B.E., D.S.O., M.C., Brig. (local) A. E. Porritt, C.B.E.; Cols. (Temp.) L. T. Furnivall, D.S.O., and W. A. Robinson, O.B.E.; Col. (Acting) R. W. Fairbrother; Lieut.-Col. A. Harrison-Hall; Lieut.-Cols. (Temp.) W. M. Arnott, T.D., J. H. Bolton, A. L. Eyre-Brook, C. L. Broomhead, T.D., J. Clay, P. Coleman, T. H. Crozier, G. V. Davies, T. H. Dockrell, L. H. Howells, A. F. Kennedy, O.B.E., J. C. Lindsay, M. J. Lindsey, M.C., M. Markowe, N. H. Martin, T. Moore, R. J. G. Morrison, F. Murgatroyd, E. A. L. Murphy, T.D., J. W. Osborne, W. M. Oxley, G. D. Pirrie, C. B. Prowse, W. A. McD. Scott, J. Shields, C. de V. Shortt, R. A. Smart, R. A. Stephen, J. P. Stewart, W. Stewart, M.B.E., and A. D. Young, D.S.O.; Majors E. H. Evans, J. A. C. Fleming, E. R. Hargreaves, and B. F. Longbotham; Majors (Temp.) J. MacC. Almond, E. McL. Barbour, J. Borrowman, R. Y. Bullock, A. A. Byrne, M.C., G. G. Cochrane, H. H. Collier, J. L. Collis, R. C. Cunningham, G. H. Darke, W. N. Darling, F. R. Dennison, W. N. Douglas, R. Glanvill, G. Gregg, A. B. Hamer, J. M. Harker, M.B.E., J. C. Harland, G. J. Harrison, S. T. Henderson, J. A. Hewitt, S. Howe, W. Hynes, J. E. Marquis, R. J. Miller, W. G. Mills, C. R. Morgan, R. T. Nicholas, D. J. Paddison, K. D. G. Reid, I. B. Rees-Roberts, J. A. Ross, J. E. Royds, G. R. Royston, G. Sanders, R. S. Thompson, H. Hall-Tomkin, M. Toohey, A. M. Wadsworth, F. R. Waldron, J. Watt, M.C., L. R. West, H. F. Whalley, A. R. Wilson, M.C., and J. W. Wishart; Majors (Acting) W. J. Christie, and H. S. Lanceley; Capts. E. Adderson, J. Anderson, J. D. Binning, R. Black, J. N. Blair, F. M. Braines, J. M. Childs, S. S. Conlan, P. J. Cremin, W. R. Cuningham, (Mrs.) M. W. Davies, R. D. Dewar, A. H. Dickie, W. K. Douglas, A. R. Ford, W. G. French, T. Gibson, W. N. Gibson, D. H. Girdwood, (Miss) M. B. Graham, A. Hughes, R. T. Kiddie, H. W. Lees, R. Levy, M. P. Lewis, N. A. Lewtas, E. Maclaine, O.B.E., A. D. Macrae, J. D. McCardel, R. C. McLaren, T. H. Meek, C. Milne, J. F. O'Neill, G. W. Pimblett, (Miss) D. P. Potter, E. J. T. Prettejohn, D. H. Rhind, P. M. Ritchie, T. T. Romans, (Miss) O. C. Sandys, W. M. Smith, D. N. Stuart, J. H. Tasker, J. R. Trounce, I. McC. Troup, H. B. S. Warren, P. F. A. Watkins, C. J. L. Wells, W. F. White, O. P. G. Whitfield, I. A. Williams, and W. K. Young; Capts. (Temp.) W. H. Franklin, and J. Wilson; Lieuts. J. G. S. Burton, F. A. Donnithorne, S. B. Fletcher, K. D. Poulter, W. A. Reynolds, K. L. Taylor, A. H. Tottle, C. Weir, and S. J. Windsor, R.A.M.C., Lieut.-Col. J. M. Spence; Majors (Acting Lieut.-Cols.) F. S. Brion and W. M. Couper; Majors H. W. Fish, E.D., E. W. Flahiff, S. Hanson, E. A. Lovell, A. B. Sinclair, E. G. Spooner, C. R. Trask, and K. J. R. Wightman; Capts. (Acting Majors) R. Cowan, and R. MacK. Taylor; Capts. J. B. Benson, R. F. Boettger, B. L. P. Brosseau, M.C., B. W. Casselman, J. N. Cunningham, T. Dalrymple, R. E. Fisher, J. H. S. Geggie, J. Greenblatt, J. E. Howes, S. Kling, G. B. McCall, J. S. S. Martin, S. M. Medine, J. K. Morrison, R. D. Oatway, J. E. G. Soucie, and J. B. Tindall; Lieut. D. P. Melville, R.C.A.M.C.

NAVAL MEDICAL COMPASSIONATE FUND

A meeting of the subscribers of the above Fund will be held on April 26, at 3 p.m., at the Medical Department of the Navy, 64, St. James's Street, S.W.1, to elect six directors of the Fund.

Medical Notes in Parliament

Development of Atomic Energy

On March 28 Mr. MARTIN LINDSAY opened a debate on the industrial development of atomic energy. He said scientific opinion on both sides of the Atlantic agreed it would be feasible to have atomic power at an economic price within about ten years. Provision in large quantities of radioactive substances would be of great value for medical and biological research and might result in new cures for diseases.

Mr. BLACKBURN said Prof. E. L. Lawrence, of California University, had stated that the first use to which the giant cyclotron in California would be put was research into and treatment of cancer. Prof. Lawrence expected valuable results in two or three years. By the use of radioactive isotopes, which could be fed or injected, it would be possible to discover the metabolism of the human body as never in the past. It would be possible to discover what made a cell grow; thus it might be possible to discover the cause of cancer. By the plutonium process one was able to extract in bulk radioactive substances and radiations vital in medical research and therapy.

Mr. JOHN WILMOT, in reply, said the problem of harnessing the energy of the atom for peaceful purposes had not been solved. Atomic energy plant produced an intense radiation—lethal if it was not screened. Benefits to medical science by the use of artificially produced radioactive materials might have immense value. In nuclear reaction about 1,000,000 times more energy was liberated from a given weight of matter than in any known chemical reaction. There seemed to be no limits to the contribution to human progress which this development might produce.

Veterinary Practice

Mr. TOM WILLIAMS, replying on April 1 to Mr. S. Hudson, said the Government welcomed the recommendations of the Loveday Committee on Veterinary Education in Great Britain and of the Chancellor Committee on Veterinary Practice by Unregistered Persons. It was intended to introduce legislation empowering the Privy Council to authorize a university to confer degrees entitling the holders to registration with the R.C.V.S. as veterinary surgeons. The Bill would also provide for the reconstitution of the Council of the R.C.V.S., would provide for that Council to exercise powers of inspection of teaching facilities and examinations at all veterinary teaching centres, and would deal with the subject of veterinary practice by unregistered persons. The Government would be prepared to provide substantially increased financial assistance to veterinary education. Legislation could not be introduced immediately.

Scrub Typhus

On April 2 Mr. LAWSON told Mr. Viant that the first batch of scrub typhus vaccine was dispatched to India in June, 1945, and by December, 1945, 268,000 ml. had been dispatched. Information was not at present available in the War Office of the number of men inoculated, and information as to the number of cases related only to 1944 and 1945. The following figures of cases of scrub typhus were reported to the War Office for the years 1944 and 1945.

	1944	1945		1944	1945
January	100	291	July	133	210
February	22	40	August	835	157
March	Nil	27	September	694	111
April	4	59	October	728	177
May	35	24	November	677	120
June	46	79	December	530	65

Enteric Fever in the Army

Mr. LAWSON regretted on April 2 that complete figures of cases of enteric fever and deaths from that disease in British armies during the war were not available. He furnished the numbers of cases for four Commands during stated periods as follows:

United Kingdom (September, 1939–December, 1945) ..	210
M.E.F. (1941–4)	789 (87 deaths)
C.M.F. (1943–5)	622
B.A.O.R. (July–December, 1945)	29
	1,650

Except in the case of M.E.F., no figures of deaths were available. The figures related to the enteric group of diseases, which included typhoid fever, paratyphoid fever A, B, and C, and "clinical typhoid."

Malaria Control

Mr. LIPSON on April 3 asked if the attention of the Secretary for the Colonies had been drawn to the report by the Ross Institute that conditions in Malaya with regard to malaria control had reverted to those of 25 years ago. Mr. GEORGE HALL said he had seen this statement. The military administration of Malaya appreciated the serious effects of Japanese neglect, and, within the limitations of man-power, supplies, and transport, pushed on with the restoration of malaria control in the larger centres of population. The Advisory Malaria Board had been reconstituted. It was the intention of the civil medical authorities, who had taken over, to press forward not only with emergency measures of oiling and the distribution of drugs but also with the reconstruction of the antimalarial works which did so much to reduce the incidence of malaria in pre-war Malaya.

Lady NOEL-BUXTON inquired on the same date whether the Government of Tanganyika had adequate machinery for co-ordinating malaria control schemes on sisal estates. Mr. GEORGE HALL said co-ordination of malaria control schemes on sisal estates in Tanganyika formed part of the general public health service of the Territory. This service was not yet fully effective owing to the acute shortage of staff in the medical department. Recruitment to fill existing vacancies in the establishment of the department was proceeding as rapidly as possible.

Universities and Colleges

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examination indicated:

THIRD M.B., CH.B.—*Pathology and Bacteriology*: Barbara Anderson, Doreen M. Ashworth, Kathleen Burn, P. J. Croxford, K. A. Etherington, Ruth Goodier, H. Jackson, V. T. Mason, Mrs. Barbara Oldham, J. E. Parry, R. J. A. Webb, Doreen Wilkinson, D. H. Wright.

UNIVERSITY OF EDINBURGH

Dr. Douglas Guthrie will give a series of lectures on the history of medicine in the physiology class-room of the University on Mondays, at 5 p.m., from April 22 to June 24, both dates inclusive. The title of his first lecture is "The Material and the Tools"; details of the other lectures will be announced in the diary column of the *Supplement* week by week. They are free to all matriculated students; 10s. to others.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

The following candidates have satisfied the examiners for the Diploma in Obstetrics of the College:

Pamela M. C. Aitchison, O. Azzopardi, Sheila M. Baker, J. Baron, Elizabeth Bate, Margaret E. M. Boulton, Muriel Brighton, R. W. Burslem, Joan Collins, Constance M. Cowan, J. Cox, Doris A. Craigmile, G. M. Evans, W. Hall, N. J. P. Hewlings, H. A. Herlett, G. I. Isaacs, S. M. Jenner, C. M. Kamdar, J. D. Martin, T. Miles, Alice K. Montgomery, J. K. Ogden, J. A. Partridge, Charlotte Saba, J. W. Smith, W. W. Willson.

Medical News

The annual meeting of the Association of Surgeons of Great Britain and Ireland will be held at the Royal College of Surgeons, Lincoln's Inn Fields, W.C., on Tuesday and Wednesday, May 7 and 8. On the first day, after the election of officers and other business, a discussion on inguinal hernia will begin at 10.15 a.m. In the afternoon short papers will be read, followed by tea at Apothecaries' Hall and dinner at Claridge's Hotel. On May 8 a discussion on "Chronic Osteomyelitis, the Sequel to a Gunshot Wound," will begin at 10 a.m., and operating sessions are being arranged at a number of London hospitals in the afternoon. Copies of the programme are issued from 45, Lincoln's Inn Fields, W.C.2.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, April 25, at 8.15 p.m., when a paper will be read by Mr. William Latey on "Consummation of Marriage and the Law."

The Société Française de Dermatologie et de Syphiligraphie will hold a special meeting devoted to the treatment of cutaneous tuberculosis by vitamin D, in high dosage at 10 a.m. on May 8, at the Museum, St. Louis Hospital, Paris. The committee of management would be very happy if some members of British dermatological societies could attend the meeting. An ordinary meeting of the society will take place on May 9 at 9.30 a.m., at which also they would be welcomed. The secretary-general is Dr. R. Degos, 20, Rue de Penthièvre, Paris, 8.

The annual general meeting of the Faculty of Ophthalmologists, whose new council has now been elected, will be held at the house of the Royal Society of Medicine, 1, Wimpole Street, W., on Saturday, June 1, at 2.30 p.m. Notices will be sent to each member and associate of the Faculty, with a copy of the annual report.

A special meeting of the London Association of the Medical Women's Federation will be held at B.M.A. House, Tavistock Square, W.C., on Thursday, April 25, at 8.30 p.m., when there will be a discussion on the National Health Service Bill.

Lord Horder presided at a dinner at the Savoy Hotel on April 5 in celebration of the 150th anniversary of the Abernethian Society, which succeeded the Medical and Philosophical Society of St. Bartholomew's Hospital, founded in 1795. The speakers included Sir Alfred Webb-Johnson, President of the Royal College of Surgeons of England, Surg. Rear-Admi. C. P. G. Wakeley, president of the Harveian Society, and Mr. Douglas Abernethy, surgeon to the Radcliffe Infirmary, Oxford, whose great-grandfather was John Abernethy's nephew.

The president of the American Chemical Society has announced the award of the Priestley medal, the highest honour in American chemistry, to Sir Ian Morris Heilbron, D.Sc., F.R.S., professor of organic chemistry in the University of London at the Imperial College of Science and Technology. Prof. Heilbron has in recent years worked on penicillin and the insecticide D.D.T.

During the first three months of this year a series of articles by Miss G. B. Carter and Miss Evelyn C. Pearce appeared in the *Nursing Mirror* under the title "Reconsideration of Nursing: Its Fundamentals, Purpose, and Place in the Community." These have now been reprinted as a pamphlet, and copies can be had for 6d. post free from the *Nursing Mirror*, Dorset House, Stamford Street, London, S.E.1.

The address of the Sheffield depot of the Regional Blood Transfusion Service is now Northfield Road, Crookes, Sheffield, 10. (Telephone No. Sheffield 63271.) This depot serves South Yorkshire, Derbyshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire, and Rutland.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales*, except for a decrease in whooping-cough 98, infectious diseases increased in prevalence, the rises being measles 407, acute pneumonia 103, scarlet fever 68, diphtheria 61, dysentery 24.

The decline in whooping-cough was due to a few counties; the largest falls were Hertfordshire 30, Staffordshire 28. The only counties with an appreciable change in the incidence of scarlet fever were Lancashire and Yorkshire West Riding, with increases of 49 and 40. A small increase in acute pneumonia was recorded in most areas. The largest rises in measles were Lancashire 168, London 78, Durham 43. The increase in diphtheria was contributed mainly by Yorkshire West Riding 18, London 14, Yorkshire East Riding 12, and Surrey 11. Diphtheria is most prevalent in Lancashire and Yorkshire West Riding, where almost one-third of the total cases were notified.

The chief centres of infection for dysentery were: Lancashire 86, Staffordshire 37, London 36, Middlesex 31, Essex 15, Warwickshire 15, Gloucestershire 10, Leicestershire 10, Glamorganshire 10.

In *Scotland* the chief changes in the incidence of infectious diseases were increases in measles 111 and acute primary pneumonia 21, and decreases in whooping-cough 34 and dysentery 18. In contrast to the general trend, the notifications of dysentery rose from 5 to 16 in the city of Aberdeen. Although the total notifications of diphtheria showed no change there was considerable local variation in incidence, and the western area had an increase from 79 to 92 cases.

In *Eire* there were diminutions in the incidence of primary pneumonia 27, whooping-cough 19, and diarrhoea and enteritis 13. The only increase of any size was diphtheria 8.

In *Northern Ireland* the notifications of scarlet fever fell by 9, and those for whooping-cough increased by 8.

Week Ending April 6

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,392, whooping-cough 2,109, diphtheria 463, measles 2,268, acute pneumonia 967, cerebrospinal fever 96, dysentery 294, paratyphoid fever 3, typhoid 3, smallpox 7. Deaths from influenza in the large towns numbered 47.

Corrigendum

In the "Epidemiological Notes" of April 13 (p. 593), relating to the week ending March 23, it was stated that Scotland had "an increase of 26 in cerebrospinal fever." It now appears that 18 cases of chicken-pox in Greenock were erroneously shown as cases of cerebrospinal fever. The total number of cases of cerebrospinal fever in Scotland for the week ending March 23 was therefore 40 and not 58, and the increase over the figures for the previous week was 8 and not 26.

No. 13

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 30.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946 (a)	1946 (b)	1946 (c)	1946 (d)	1946 (e)	1945 (Corresponding Week) (a)	1945 (b)	1945 (c)	1945 (d)	1945 (e)
Cerebrospinal fever	74	8	38	4	2	66	4	29	3	—
Deaths		1	2				—	1		
Diphtheria	478	36	115	51	17	495	17	126	97	14
Deaths	3	—	1	1	—	6	—	—	2	—
Dysentery	356	36	56	2	—	394	39	164	3	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	1		4	—	2	—	—
Deaths		—					—			
Erysipelas			41	7	—			38	12	5
Deaths		1					—			
Infective enteritis or diarrhoea under 2 years				40					19	
Deaths	66	10	4	11	1	49	8	4	6	2
Measles*	2,282	675	683	37	1	22,183	1652	290	35	37
Deaths	3	—	3	1	—	21	3	—	1	1
Ophthalmia neonatorum	67	9	19	—	—	64	2	20	—	—
Deaths										
Paratyphoid fever	4	—	1 (B)	—	—	4	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	1,079	69	31	14	5	746	38	8	6	7
Deaths (from influenza)†	50	7	6	4	5	27	2	3	—	—
Pneumonia, primary		57	360	31			40	194	19	
Deaths				17	16				4	11
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	6	—	3	—	—	6	1	—	—	2
Deaths		—					—			
Puerperal fever		3	20		1		6	19		—
Deaths										
Puerperal pyrexia‡	156	12	22	1	1	138	12	13	—	—
Deaths		—					1			
Relapsing fever	—	—			—	1	—			—
Deaths										
Scarlet fever	1,393	88	201	18	28	1,361	52	166	31	48
Deaths	—	—	—	—	—	—	—	—	—	—
Smallpox	2	—	—	—	—	—	—	—	—	—
Deaths	1			—	—				—	—
Typhoid fever	8	3	3	2	—	8	—	2	5	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,092	200	88	29	12	1,123	44	99	29	24
Deaths	8	1	1	1	—	11	2	3	2	3
Deaths (0–1 year)	408	61	64	47	24	375	47	46	33	28
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	5,524§	878	758	263	160	4,677	679	570	191	149
Annual death rate (per 1,000 persons living)			16·7	16·9				12·9	12·3	
Live births	8,392	1291	1017	511	268	5,850	596	792	308	252
Annual rate per 1,000 persons living			20·5	32·7				15·8	19·9	
Stillbirths	232	22	41			186	20	31		
Rate per 1,000 total births (including stillborn)			39					38		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Includes 1 death from smallpox.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.
Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.
ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Articulate Westcent, London.*
MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: *Mealsecru Westcent, London.*
B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Essential Xanthomatosis

Q.—*What is the underlying cause of the hypercholesteraemia of essential xanthomatosis of the hypercholesteraemic type?*

A.—Essential xanthomatosis is taken to include xanthoma tuberosum multiplex and the Hand-Schüller-Christian syndrome. Characteristically, hypercholesteraemia occurs in xanthoma tuberosum multiplex and not in the Hand-Schüller-Christian syndrome, and xanthoma tuberosum multiplex is more often familial, but cases occur with features of both syndromes. As hypercholesteraemia is not an essential symptom, it seems likely that the primary disturbance is an increased formation and storage of cholesterol in the reticular cells, with a secondary spilling-over of cholesterol into the plasma in cases with hypercholesterolaemia.

Thorium X in Rheumatoid Arthritis

Q.—*What is thorium X, and how should it be used in the treatment of rheumatoid arthritis?*

A.—Thorium X is a mildly radio-active substance which soon loses its activity by disintegration. Its use in rheumatoid arthritis is empirical and no scientific or controlled studies have yet been made of this form of therapy. Two suggestions have been put forward to account for its value in this condition. First, it may be a "general stimulus to metabolism," causing an increase in the patient's resistance to the arthritic process. Secondly, it is suggested that the alpha rays emanating from the thorium X have a destructive effect on the growing scar tissue which is forming in the synovial membranes. Both these suggestions are vague and inconclusive.

Thorium X may be administered locally to the joint in the form of an ointment, or it may be given intravenously, but most commonly it is taken in solution by mouth in doses of 50 electrostatic units three times a day for three days. There is a danger of leucopenia which must be guarded against.

Inheritance of Retinitis Pigmentosa

Q.—*In "Any Questions?" of Nov. 24, 1945 (p. 752), and again on Feb. 23, 1946 (p. 302), it is stated that there is no reason why persons suffering from retinitis pigmentosa should not have children. Could this be explained further? Some patients have long pedigrees of the disease and many affected relatives. Is it right to advocate the broadcasting in the population of such highly undesirable genes?*

A.—The first sentence in the question is not quite correct. In both instances mentioned the individual family histories together with the known hereditary behaviour of the condition made it reasonably certain that a recessive gene is involved. It was because of this that it was stated that there was no sufficient argument against children, should the sufferers want them. Had inheritance been dominant (or sex-linked), which does occur sometimes, the genetic outlook would have been quite different and it would be most unwise to have children.

For practical purposes there are three simple types of inheritance: dominant, sex-linked, and recessive. A dominant gene is expressed even though the corresponding gene received from the other parent is normal. On the average, half the offspring of any affected person are themselves affected. Direct transmission of the trait is observed from parent to child.

Sex-linked traits, of which haemophilia is the classical example, depend upon genes carried on the X-chromosome, of which the female possesses two and the male only one. A carrier female, possessing one abnormal gene, is herself outwardly normal; but half her sons receive the abnormal gene on their single X-chromosomes and so are affected. An affected man who marries has normal children only, but all his daughters will be carriers. It can easily be seen, therefore, that in simple dominant inheritance the only problem is the affected person; the children of such people have a 50% chance of being similarly affected. With a sex-linked trait a woman who has already had an affected child has a one-in-four chance that any subsequent child will be affected. The sisters of a haemophiliac may or may not be carriers; the combined chance that any child will be affected is one in eight. A haemophiliac who marries will have normal children, but one-quarter of his grandchildren will be affected. It is clear, therefore, that in regard to these two modes of transmission some individuals run a risk which few sensible people would knowingly accept.

Recessive inheritance is quite different. Here *both* chromosomes of the pair concerned must carry the abnormal gene before the defect becomes manifest—i.e., one abnormal gene is received from each of the parents, who in the vast majority of instances will themselves be outwardly normal. A couple who have had one affected child run a one-in-four risk that any subsequent child will be abnormal also. The abnormal person himself carries two abnormal genes and so all his children will be carriers, but as in the great majority of instances he will marry someone who does not possess the gene, all his children will be normal. And so it may go on for many generations. The genetic prognosis is therefore excellent, with one proviso: the affected person (and his relatives) should not marry a cousin, because, of course, a cousin may well carry the very same abnormal gene. I saw a few weeks ago a patient suffering from retinitis pigmentosa, the first in her family group to do so. A normal sister had married a cousin and had had an affected child.

In all probability most of us carry at least one undesirable recessive gene, so that for every affected person there are many carriers. The reduction in the number of such genes by preventing the marriage of abnormals would be relatively trifling. If, therefore, we can be reasonably certain that a particular instance of retinitis pigmentosa is due to a recessive gene—and this is the rule—there is no reason to advise against marriage.

Efficient Stethoscope

Q.—*Have any recent tests been made of the efficacy of various forms of stethoscope? As one gets on in years hearing becomes less acute, and one needs the most efficient instrument obtainable.*

A.—It is the general experience that the open bell-shaped chestpiece used with a binaural stethoscope is the best combination for picking up low-pitched or rumbling murmurs—for example, those of mitral stenosis. On the other hand, the flat chestpiece with diaphragm (phonendoscope) is found by most observers to be best for hearing the high-pitched murmurs (often very soft) of aortic incompetence in the earliest stage. In general, for those hard of hearing, I would stress the value of well-fitting rubber ear connexions, and a rubber rim around the bell-shaped chestpiece, for the better exclusion of extraneous sounds, and thick rubber tubing for the same reason. For the auscultation of the lungs a physician hard of hearing will probably find the phonendoscope type of chestpiece more helpful.

Atropine in Labour

Q.—*Ether anaesthesia being desired during the second stage, can atropine 1/100 gr. (0.65 mg.) be injected without affecting parturition?*

A.—In laboratory experiments it has been shown that atropine can interfere with the action on uterine muscle of some drugs, such as acetylcholine and pilocarpine. Nevertheless, it does not block nerve impulses to the uterus, nor does it inhibit normal spontaneous uterine activity or interfere with the uterine response to posterior pituitary extract. In the past it was sometimes stated that atropine was contraindicated during labour because it might depress uterine contractions. This is not borne out by clinical experience, and A. W. Bourne and

J. H. Burn (*Journal*, July 19, 1930, p. 87) recorded the contractions of the human uterus during labour and noted that, if anything, the contractions were intensified rather than decreased after 1/100 gr. (0.65 mg.) atropine. Although the position is not clear (atropine is still recommended by some authorities in the treatment of spasmodic dysmenorrhoea) it may be stated that atropine in ordinary dosage can be given to the parturient woman without fear of materially disturbing uterine action.

Skimmed Milk for Children

Q.—*Is skimmed milk suitable for feeding infants and older children? Is it correct to say that the only constituent it lacks as compared with cow's milk is fat; and that, but for the want of fat, it is equivalent to cow's milk in its content of mineral salts? The importation of skimmed milk into British Guiana at a reduced rate of customs duties in order to meet the scarcity of local cow's milk has given rise to varying opinions. The view that skimmed milk is suitable for infants was reported in the local press as having been expressed by a nutrition expert who visited this colony last year.*

A.—This is a somewhat complicated question, and perhaps one should not attempt an answer without a knowledge of the local conditions in British Guiana and the choice of milk available. From a general point of view, it is fair to state that skimmed milk is not suitable for infants. Not only is the fat content reduced, but this naturally means that given in a strength in which the protein can be digested the calorie content of the milk mixture will be low. Moreover, it is generally accepted that the calcium of milk is in some physico-chemical relationship with the fat and, whether this be true or not, it does seem accepted that absorption of the calcium will depend upon fat intake. These remarks apply when milk is the sole source of food. In older children, on the other hand, it has been clearly shown that even skimmed milk is a valuable supplement to normal diet. It may be that the nutrition expert mentioned in the question had this in mind.

Thought, Emotion, and the Encephalogram

Q.—*What are the effects of thought and of emotion upon the electroencephalogram?*

A.—Attention of any kind will modify the records in the electroencephalogram. The usual dominant frequency of about 10 a second is inhibited by opening the eyes. This inhibition is not purely visual, it is the result of visual attention—so with any thought processes or emotional states which involve the patient's attention. Emotional states give rise to direct potential changes on the surface of the body, but these direct potential changes are not recorded in the electroencephalogram, which is so designed that it records only alternating and indirect current flow. In any case these direct potential drifts would not materially affect the electroencephalographic record.

Electric Shocks for Phlebitis

Q.—*Five months ago, following confinement, a patient developed phlebitis in the left leg. Despite rest the leg remained painful and swelled every evening until one day, a week ago, when she received by accident a severe electric shock. From that minute the pain and swelling have ceased. Can you explain this?*

A.—Persistent swelling of the leg indicates some impairment of the circulation; and, although vascular changes are sometimes found post mortem following fatal electric shocks, it is difficult to account for a sudden restoration of the circulation of the leg as a result of the accident described. It may be that the general upset occasioned by the shock has caused the patient to take more rest and thus minimized the swelling of the leg. A longer period of observation seems necessary before any conclusion as to the effect of the accident is justified.

Carbon Monoxide in a Bathroom

Q.—*What is the simplest and most reliable test for the presence of carbon monoxide in a bathroom?*

A.—Small amounts of carbon monoxide can be detected by passing the gas to be tested through a dilute solution of palladous chloride, or by exposing a filter paper soaked in this solution, when a darker colour is obtained owing to the presence of metallic palladium. Other reducing gases, however, will give this reaction. The standard method of determining small amounts of carbon monoxide is based on the reduction of iodine pentoxide to iodine by CO. A portable apparatus based on this method is available in this country.

A portable instrument of a different type has been used in the U.S.A. A stream of air is drawn over a Hopcalite catalyst and the carbon monoxide is burnt; the heat thus produced is proportional to the amount of gas. The increase in temperature is detected by a thermocouple and recorded on a meter graduated in parts of CO per 10,000 of air. Such instruments must be calibrated frequently against a standard chemical method.

The detection of carbon monoxide in air and the subsequent analyses are definitely matters for an expert, who should be consulted if one had the slightest reason to suspect the presence of carbon monoxide in a bathroom.

Haemorrhagic Disease of the Newborn

Q.—*A boy aged 7 developed haematemesis when 4 days old. At 5 weeks old, when put on to half-cream milk (he was bottle-fed), he developed scalp eczema, which subsequently spread to the flexures of the body. This now alternates with attacks of asthma. The father has hay-fever; and the mother's father, mother, and uncle had duodenal ulcers. The mother wonders whether the next child will be similarly affected.*

A.—The three questions at issue are haemorrhagic disease of the newly born, allergy, and peptic ulcer. Tendencies to the two last are undoubtedly inherited and nothing dramatic can be done to prevent them, though breast-feeding is probably preferable to bottle-feeding for the allergic infant. Haemorrhagic disease of the newborn is not usually hereditary or familial; to prevent it, giving the mother 25 mg. of menaphthone or 50 mg. of acetomenaphthone at the beginning of labour, and the baby 5 mg. of menaphthone as soon as possible after birth, has been recommended.

Simmonds's Disease

Q.—*What is the latest treatment for Simmonds's disease?*

A.—In Simmonds's disease, as a result of anterior pituitary destruction, failure of function is met with in the gonads, thyroid, and adrenal glands. Theoretically, therefore, substitution therapy should comprise oestradiol (or stilboestrol, hexoestrol, or dienoestrol), progesterone, testosterone, thyroid, and desoxycortone or cortical extract, and these should be continued indefinitely. In practice, good results may be obtained with all of these, or with some of them. Thyroid should not be given, at any rate in large doses, in the early stages, as patients may prove intolerant, possibly because of the poor nutrition and glycogen depletion of the liver. Testosterone is indicated in the male, not only because of its effect on sex function, but because of its anabolic effect, resulting in an increase in appetite, gain in strength and in weight. The writer has also found it of great value in women, and the danger of hirsutism or acne seems to be much less in these patients than in other women. Methyl testosterone, 5 mg. t.d.s. by mouth, is partially effective, and may be supplemented by dienoestrol 0.3 mg. b.d., and ethisterone 10 mg. t.d.s., thus avoiding injections.

Stimulation of the gonads by gonadotrophins may be attempted, but patients may prove dangerously allergic, and in any case it is still only substitution therapy and must be continued. Fortunately, in partial Simmonds's disease there may well be, in the course of time, an appreciable degree of spontaneous recovery. Should pregnancy supervene, by any chance, the resulting hypertrophy of the undestroyed portion of the anterior pituitary gland will also tend to produce recovery. Pregnancy, however, is rare in Simmonds's disease of any severity.

Tuberculosis of the Breast

Q.—*What is the best treatment for tuberculosis of the breast?*

A.—Tuberculosis of the breast is uncommon. Infection may occur from the blood stream, which may convey the microbe from a pulmonary or other focus; sometimes, however, it appears to gain access through the nipple. The lesion may be subacute and fairly rapidly form a chronic abscess, and this may cause the formation of sinuses, which may betray the nature of the lesion. At other times the chronicity of the lesion may lead to fibrosis, which may very closely simulate

carcinoma. In nearly all cases the best treatment is complete removal of the breast. A possible exception is that case in which there is but a small lesion near the nipple; in such a case a local excision may first be tried.

Penicillin for Psoriasis

Q.—*Is penicillin any use in psoriasis? If so, what is the best way to give it?*

A.—This question cannot be answered by a simple Yes or No. In those prone to this pattern of reaction psoriasis may be provoked by a variety of different causes at different times. The provocation may be an endocrine disturbance, or may be climatic; it is often nervous but is sometimes toxic, from some infection or some infected focus. In the latter group of cases penicillin therapy parenterally is likely to be valuable for the particular attacks. No doubt a new line of therapy like penicillin will for a time bring relief through suggestion given either parenterally or by local application. I have little experience of its use in this manner, however.

Sterility following Mumps

Q.—*An officer aged 27 complains of a heavy, aching pain in his right testicle and groin. He developed mumps four months ago, with a left orchitis. He lived ashore with his wife for a month, with a resultant increase in the symptoms. His sexual potency and libido are not affected, but he was worried about the possibility of sterility. The left testicle is atrophied, and the right epididymis is slightly tender at times. He has worn a scrotal support for some time with no amelioration of his symptoms. I should appreciate advice as to treatment.*

A.—It is stated that the left testicle is atrophied and that the right epididymis is occasionally tender. The word epididymitis is not used, and if no true infection of the epididymis has occurred there is no reason to believe that the patient is sterile. But if he is anxious about his condition—and it is not surprising that he should be—a specimen of semen should be examined. All that is required is to discover whether spermatozoa are present or not. No expert analysis is at the moment necessary. If the occasional tenderness and aching are due to congestion alternate sponging with warm and cold water, in addition to the wearing of a bandage, often brings relief.

INCOME TAX

Demobilization—Car Expenses

T. D.'s demobilization leave expired on Dec. 31, 1945; he commenced work as an assistant in general practice on Dec. 1. How is his assessment for the year to April 5, 1946, calculated? He has been using car A, but intends to sell it and buy car B before the end of this month. What should he claim in that connexion?

⁂ T. D. will be assessed for the year to April 5, 1946, for nine months' Army pay (on the basis of the previous year if that is to his advantage) and for four months' civil earnings. For 1945–6 he should claim depreciation allowance on car A up to the date of sale, and on car B from the date of purchase—at 20% plus one-fifth—and obsolescence allowance on car A—i.e., the cost price less the depreciation claimed on that car and less, also, the amount received for the car on sale. For 1946–7 he should claim the 20% "initial allowance" on car B—i.e., 20% on the cost price less the depreciation allowance claimed on that car for 1945–6, and also, of course, the depreciation allowance on the written-down value.

Sale of Car—"Balancing Charge"

C. H. has two cars, one of which "is valued at £12 for income-tax purposes but is worth about £212 at market values." He wishes to replace it, but the new car will not be available until next August.

⁂ If he sells the car on or after April 6, 1946, while carrying on the practice he will be liable to account for income tax on the excess of the amount received for it over the income-tax value; subject to the fact that this "balancing charge" must not exceed the aggregate of the depreciation allowances made to him in respect of the old car. If he sells the car before April 6, 1946—which is the "appointed day" at which the Income Tax Act, 1945, comes into operation—he will not be liable to the "balancing charge."

Car Transactions

P. M. has a car ("M") which cost £130 in 1939, and on which he has received £111 in depreciation allowances. What will be the position if he sells it (*a*) before or (*b*) on or after April 6, 1946? A similar inquiry is made with regard to another car ("V") which has been depreciated to £275 and may be sold for £200.

⁂ *Car "M".*—(*a*) If sold before April 6 no liability to a balancing charge will arise. (*b*) If sold on or after April 6 a balancing charge will be due, the amount being either the excess of the selling price over £19 (£130–£111) *or* £111, whichever is the less. *Car "V."*—If sold before April 6, P. M. will be entitled to the usual obsolescence allowance. If sold on or after April 6 he will be entitled to claim the excess of the depreciated value for income-tax purposes (£275) over the selling price. (In this case the two allowances will apparently amount to the same thing.)

Lectures on a Non-medical Subject

R. is in practice as a consultant, but two or three times a year lectures for a fee on a non-medical subject. Should the fees be shown as income for tax purposes?

⁂ Yes. It may be open to doubt whether they are chargeable under Schedule E, but if not they appear to be caught by Case VI, Schedule D, as "annual profits or gains . . . not charged by any other Schedule."

Change of Practices

J. O. sold a practice recently and is negotiating the purchase of a practice in another part of the country. With which tax office should he deal?

⁂ As regards the former practice, the office which has hitherto dealt with his income-tax liability; as regards the new practice—if it is in fact acquired—the office dealing with that locality.

Colonial Medical Service

L. L. arrived in England in December, 1945, for a course of study. Part of his salary is paid to his wife abroad; the balance is paid to him here.

⁂ As L. L. has come to the United Kingdom for a temporary purpose and not with a view to establishing a residence here, he will not be liable to British income tax if he is not in the country for six months of the financial year. He will not be liable for 1945–6, but will be liable for 1946–7 if his stay here lasts beyond Oct. 5, 1947. If that occurs he will be liable on the amount of pay received here, less the usual personal allowances and less some allowance for income tax paid on the same income in the colony.

LETTERS, NOTES, ETC.

Keeping Properties of Serum and Plasma

Dr. K. S. RANGANATHAN writes from New Delhi: The statement that "human citrated plasma in liquid form should not be stored unless frozen in the solid state" (Jan. 26, p. 152) is rather dogmatic and may create an impression that the use of plasma stored in liquid form is dangerous. In my experience processed plasma stored in the liquid state is a perfectly safe product to use for restoring and maintaining a lost blood volume. At the Madras Blood Bank in the King Institute of Preventive Medicine, Guindy, we have prepared and issued during the last three years only liquid plasma processed according to the alkali-CO_2-neutralization technique described by Bushby and Whitby. In 1943 and 1944 most of the plasma prepared had been held in storage at 42° F. (5.5° C.) to meet any possible emergency. The safe time limit for the storage of plasma was then not known, though it was frequently mentioned in the literature that fluid plasma could be stored for "several months." After careful clinical trials the time limit was extended gradually from three months to one year. Some hundreds of transfusions have been given in the Madras city hospitals with plasma stored for about one year, and, in some cases, for about eighteen months. From this experience we have fixed that the safe storage period for wet plasma should not ordinarily exceed twelve months. In a paper read before the Madras Medical Association on March 9, 1944, I gave the results of clinical trials with wet plasma, analysing the data of 105 transfusion cases of which the blood bank had complete records. The plasma had been used for the treatment of post-operative shock in 77 cases, injuries including gunshot 10, burns 17, and shock after spinal analgesia 1. Of these cases, 7 developed a rigor, 4 had a rise of temperature, while 1 had urticaria after transfusion of plasma. The results were excellent: life undoubtedly saved in 19, good in 46, improvement followed by death of the patient in 25, and no improvement in 15. A surgeon who had used large amounts of fluid plasma summed up his impression by reporting: "The use of plasma saved a number of lives. Many of them would not have recovered but for the plasma."

Among those who were not benefited by plasma transfusion were many patients in an advanced state of shock who could not be expected to recover under any treatment: to give a few instances, cases of perforated gastric and duodenal ulcers, traumatic rupture of intestines, strangulated hernia of three days' duration, etc. One transfusion report contains a remark which gives an idea of the type of cases falling in these groups. "The [blood] pressure never

rose in spite of giving plasma in a continuous stream by the open method," a typical example of the terminal stage of shock. In some cases the plasma was given too late, while in others the plasma was given either too slowly or in insufficient amount to have any real effect or was stopped too soon so that the initial improvement was not maintained. In two cases it was suggested that the plasma transfusion was followed by ill-effects. These have been investigated. The first was a patient with hypertension in whom plasma transfusion was commenced after the B.P. had fallen from 160/80 to 90/76 during an operation for excision of elephantoid scrotum. The plasma transfusion was continued at the rate of 70 drops a minute, 1,000 ml. being given in four hours. The B.P. continued to fall and the patient died. It was obviously a case of inadequate speed and inadequate volume. The other was a patient on whom a hemicolectomy had been done for ileo-caecal tuberculosis. When the plasma transfusion was started the patient's condition was "bad." The B.P. was 104/60 and pulse rate 102; 500 ml. of plasma was given in one hour, when the patient's condition became "worse," with B.P. 90/58 and pulse rate 136. An hour and a half later an intravenous infusion of normal saline was started and the patient improved, the B.P. rising to 118/68. I venture to suggest, from my experience of two other similar cases in which a saline infusion restored the B.P., which had fallen apparently due to transfusion of plasma, that these are cases of dehydration which fare badly when plasma is given without concomitant administration of saline solution. Since March, 1944, some hundreds more transfusions of stored fluid plasma have been given with very favourable, and in some instances spectacular, results. I am unable to analyse these results as I have no access to the records, which are in far-off Madras.

I have been constrained to make the above observations at some length because processed human citrated plasma and serum stored in the fluid state are in general use all over India except in one or two centres where facilities for drying plasma/serum exist, and any impression that the use of such products is fraught with danger would have disastrous consequences in India and would retard the progress of transfusion in this country. Besides, facilities for storing plasma in the frozen state are equally lacking in India. Experience has shown that properly processed plasma can safely be used after storage at low temperature even in the Tropics.

Are the People More Healthy?

Surg. Lieut.-Cmdr. G. H. C. ST. G. GRIFFITHS, R.N.V.R., writes: Your article on this intriguing subject (March 2, p. 318) touched inconclusively on "health," discerned from rather a limited aspect—e.g., coryza, influenza, rheumatism, tuberculosis, and the mortality rate. It did not take into consideration that colds, 'flu, and even rheumatism, ought to be more epidemic one year or season, or the climate was more humid or exacting. Even on peacetime food abundance it must be admitted that epidemics of these diseases are more prevalent in one year than another, or the season is wetter and the rainfall greater, so that food, or the lack of it, may not have contributed to the figures stated in the article in question. Those responsible for the dieting of the nation naturally had to use propaganda of a cheering type, to encourage the public to undertake their long and arduous sacrifices and to endure their lot in going without many valuable foods, such as cheese, cream, butter, eggs, fine bread, meat, and a host of other peacetime foods. Substitutions, such as synthetic jams, powdered egg, peanut butter, varieties of margarine or "honey," were all served to the public in turn to eke out the monotonous and irksome diet that had to be faced, and unfortunately still has to be, owing to the alleged world shortage. However, all these sacrifices led to a "something" that we, as a nation, had not known previously: a general lassitude, languor, lack of energy and driving power; a lack of quick recuperative power to 100%, if ever attained, after some trifling illness. There seemed to be many individuals, men and women, suffering from varying slight grades of anaemia. Fractures, too, through deficient calcium, were more numerous. Accidents causing fractures on the football field were in excess of normal. These fractures often showed grave osteoporosis and decalcification of the bones, the bones appearing under *x* rays to be little more than fibrous tissues. Skin diseases such as acne pustulosa, furuncles, bullous pemphigus, and carbuncles seemed much more common, due to lack of fresh meat, fruit, and similar foods. Teeth also were not spared, owing to our lack of milk, cream, and butter. The reference to the mortality rate hardly holds good. Millions of people can be more or less starved to a certain extent without reaching the condition of those in Belsen Camp. No grievous epidemic, either, overtook this country, as in 1918, to decimate its inhabitants.

Schizophrenia and War Service

Mr. J. H. WOOD, Secretary, Pensions Department, the British Legion (Scotland) writes: With reference to the question and answer (March 16, p. 419) regarding the Ministry of Pensions and the above disease, first of all, may I point out that the Pensions Appeal Tribunals are independent and not run by the Ministry, and they consist of a lawyer, a doctor, and an ex-Service man. Although in the case quoted there was no pre-Service history of the disease and the family history was good, I am afraid that the Ministry of Pensions would only admit that the schizophrenia was aggravated or, in other words, made worse by his service in the Navy, but would not admit that it was attributable thereto, their view being that no case of schizophrenia can be due to war service as in every case there is a constitutional predisposition. At the risk of incurring the wrath of many psychiatrists, but not all, I may say that the British Legion disagrees entirely with this point of view, and holds that in cases such as the above the disability can be fairly said to be attributable to war service. Here it is worth noting that in the old Royal Warrant the words "directly attributable" were used, and we would admit in that case that where a predisposition exists it could not be "directly attributable." However, in the present Royal Warrant the word "attributable" appears by itself, and therefore, if a man has a good personal and family history and breaks down under Service stress, the obvious conclusion to be drawn is that the psychosis is attributable to war service. It is also worth noting that Brig. G. W. B. James, in the *Journal* of Nov. 3, 1945 (p. 620), says that in some cases schizophrenia can be fairly said to be the direct result of war service. If only we could alter this attitude of mind in the Ministry and on the Pensions Appeal Tribunals, who, I am sorry to say, uphold the Ministry in their misinterpretation of the word "attributable," the Legion would be a lot happier.

Intravenous Protein Hydrolysates

Dr. A. NEUBERGER, Secretary of the Protein Requirements Committee of the Medical Research Council, writes: Dr. H. E. Magee states that "British preparations for intravenous use are made by hydrolysing casein with sulphuric acid." This is not the case. All preparations which have been tested in this country under the auspices of the Protein Requirements Committee of the Medical Research Council have been prepared by enzymic hydrolysis. One particular preparation made with acid and which had been supplemented with tryptophan has been used in a small number of cases abroad. Dr. Magee also states that "a few repatriated prisoners of war were treated with protein hydrolysates in England in 1945 with some but not spectacular success. Thrombosis of injected veins occurred in every case." It must be pointed out that in the clinical tests carried out under the auspices of our committee thrombosis, though undesirably frequent, was not a regular feature, as implied by Dr. Magee. Thrombosis has also been occasionally observed when American preparations were used. It is clear that further work both on the production of protein hydrolysates and on the clinical administration and indications is required before this method of intravenous alimentation can be recommended for general clinical use.

Height of Water-closet Seats

Fl. Lieut. R. S. HENDERSON, R.A.F.V.R., writes: Surely there is little doubt that the ideal posture for defaecation is a crouching one, with spine, hip-joints, and knee-joints fully flexed, the feet apart, and the anal orifice as near the ground as possible. Most animals may be observed to find this natural and effective. Campers, passing their motions into prepared holes in the ground, know it to be ideal. Now lavatory seats, as at present designed, are never less than 18 in. to 2 ft. (45 to 60 cm.) off the ground. At a time in history when we are expecting almost at any hour the appearance all over the country of new houses, it seems that builders generally might be encouraged to lower the height of their lavatory seats from the ground to a maximum of 12 in. (30 cm.). Quite apart from the saving of material involved, the nation as a whole might thus find itself pleasingly less constipated—with incalculable benefit, no doubt, to the rest of the world.

Blood Transfusion Apparatus

Mrs. A. D. HEDGES, secretary of the Durban Blood Transfusion Service, writes from Addington Hospital, Durban, South Africa: The Durban Blood Transfusion Service has started a small museum, and we would like readers of the *British Medical Journal* who have any discarded pieces of blood transfusion apparatus, for which they have no further use, to consider sending them to us.

Corrections

In the report of the Royal Society of Medicine discussion on vascular injuries of warfare (April 6, p. 540) "Mr. Mayer" should read "Mr. B. C. Maybury." We apologize for the error.

Dr. STEPHEN D. STURTON wishes to correct a misprint in his letter on "Deck Ankles" and "Travellers' Oedema" published in the *Journal* of April 13. The third sentence of the second paragraph should read: "By the morning of July 12 out of 314 prisoners *249* of us were suffering from this condition."

Mr. F. G. ST. CLAIR STRANGE, F.R.C.S. (Ministry of Pensions Hospital, Dunston Hill, Gateshead, Co. Durham) is seeking back numbers of the *British Journal of Surgery*. The copies he wants are (up to twelve in number) of the July, 1945, issue, Vol. XXXIII, No. 129.